

SOI: 1.1/TAS

DOI: 10.15863/TAS

Scopus ASJC: 1000

ISSN 2308-4944 (print)

ISSN 2409-0085 (online)

№ 11 (103) 2021

Teoretičeskaâ i prikladnaâ nauka

Theoretical & Applied Science



Philadelphia, USA

**Teoretičkaâ i prikladnaâ
nauka**

**Theoretical & Applied
Science**

11 (103)

2021

International Scientific Journal

Theoretical & Applied Science

Founder: **International Academy of Theoretical & Applied Sciences**

Published since 2013 year. Issued Monthly.

International scientific journal «Theoretical & Applied Science», registered in France, and indexed more than 45 international scientific bases.

Editorial office: <http://T-Science.org> Phone: +777727-606-81

E-mail: T-Science@mail.ru

Editor-in Chief:

Alexandr Shevtsov

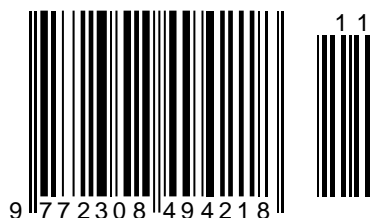
Hirsch index:

h Index RISC = 1 (78)

Editorial Board:

1	Prof.	Vladimir Kestelman	USA	h Index Scopus = 3 (38)
2	Prof.	Arne Jönsson	Sweden	h Index Scopus = 10 (33)
3	Prof.	Sagat Zhunisbekov	KZ	-
4	Assistant of Prof.	Boselin Prabhu	India	-
5	Lecturer	Denis Chemezov	Russia	h Index RISC = 2 (61)
6	Associate Prof.	Elnur Hasanov	Azerbaijan	h Index Scopus = 8 (11)
7	Associate Prof.	Christo Ananth	India	h Index Scopus = - (1)
8	Prof.	Shafa Aliyev	Azerbaijan	h Index Scopus = - (1)
9	Associate Prof.	Ramesh Kumar	India	h Index Scopus = - (2)
10	Associate Prof.	S. Sathish	India	h Index Scopus = 2 (13)
11	Researcher	Rohit Kumar Verma	India	-
12	Prof.	Kerem Shixaliyev	Azerbaijan	-
13	Associate Prof.	Ananeva Elena Pavlovna	Russia	h Index RISC = 1 (19)
14	Associate Prof.	Muhammad Hussein Noure Elahi	Iran	-
15	Assistant of Prof.	Tamar Shiukashvili	Georgia	-
16	Prof.	Said Abdullaevich Salekhov	Russia	-
17	Prof.	Vladimir Timofeevich Prokhorov	Russia	-
18	Researcher	Bobir Ortikmirzayevich Tursunov	Uzbekistan	-
19	Associate Prof.	Victor Aleksandrovich Melent'ev	Russia	-
20	Prof.	Manuchar Shishinashvili	Georgia	-

ISSN 2308-4944



© Collective of Authors

© «Theoretical & Applied Science»

International Scientific Journal

Theoretical & Applied Science

Editorial Board:

Hirsch index:

21	Prof.	Konstantin Kurpayanidi	Uzbekistan	h Index RISC = 8 (67)
22	Prof.	Shoumarov G'ayrat Bahramovich	Uzbekistan	-
23	Associate Prof.	Saidvali Yusupov	Uzbekistan	-
24	PhD	Tengiz Magradze	Georgia	-
25		Dilnoza Azlarova	Uzbekistan	-
26	Associate Prof.	Sanjar Goyipnazarov	Uzbekistan	-
27	Prof.	Shakhlo Ergasheva	Uzbekistan	-
28	Prof.	Nigora Safarova	Uzbekistan	-
29	Associate Prof.	Kurbonov Tohir Hamdamovich	Uzbekistan	-
30	Prof.	Pakhrutdinov Shukritdin Il'yasovich	Uzbekistan	-
31	PhD	Mamazhonov Akramzhon Turgunovich	Uzbekistan	-
32	PhD	Ravindra Bhardwaj	USA	h Index Scopus = 2 (5)
33	Assistant lecturer	Mehrinigor Akhmedova	Uzbekistan	-
34	Associate Prof.	Fayziyeva Makhbuba Rakhimjanovna	Uzbekistan	-
35	PhD	Jamshid Jalilov	Uzbekistan	-
36		Guzalbegim Rakhimova	Uzbekistan	-
37	Prof.	Gulchehra Gaffarova	Uzbekistan	-
38	Prof.	Manana Garibashvili	Georgia	-
39	D.Sc.	Alijon Karimovich Khusanov	Uzbekistan	-
40	PhD	Azizkhon Rakhmonov	Uzbekistan	-
41	Prof.	Sarvinoz Kadirova	Uzbekistan	-

International Scientific Journal
Theoretical & Applied Science



ISJ Theoretical & Applied Science, 11 (103), 1218.
Philadelphia, USA



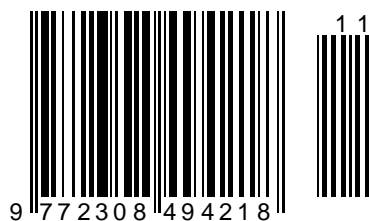
Impact Factor ICV = 6.630

Impact Factor ISI = 0.829
based on International Citation Report (ICR)

The percentage of rejected articles:



ISSN 2308-4944



Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 05.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Kamol Namazovich Kadirov

Navoi State Pedagogical Institute

Associate Professor of the Department of Russian Language and Literature,

Uzbekistan

Diana Shavkatovna Rizaeva

Navoi State Pedagogical Institute

1st year master

Uzbekistan

«ALPAMYSH» IS ONE OF THE MOST REMARKABLE MONUMENTS OF THE UZBEK PEOPLE'S EPOS

Abstract: The article deals with the collection and study of Uzbek folklore on a scientific basis, which began only in the early twenties of this century. The artistic charm of the original narratives about the objects of the age-old dreams of a person with special strength and versatility is manifested in the heroic epic "Alpamysh".

Key words: monumental work, Uzbek dastan "Alpamysh", dastan storytelling, first "records" of legends and traditions, Uzbek epic singers (bakhshi), a special cultural phenomenon, dastan of creativity, bakhshi performers, bakhshi improvisers and bakhshi poets.

Language: English

Citation: Kadirov, K. N., & Rizaeva, D. Sh. (2021). «Alpamysh» is one of the most remarkable monuments of the Uzbek people's epos. *ISJ Theoretical & Applied Science*, 11 (103), 301-304.

Soi: <http://s-o-i.org/1.1/TAS-11-103-16> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.16>

Scopus ASCC: 1200.

Introduction

Dastan "Alpamysh" belongs to the category of monumental works, the popularity and great value of which is that it reflects with high poetic skill the eternal themes of the triumph of good over evil, the ideas of justice and humanism. Undoubtedly, the nationwide veneration of the imperishable treasures of ancient oral poetry is determined by their aesthetic significance. The artistic charm of the original narratives about the objects of the age-old dream of a person with special strength and versatility manifested itself in the heroic epic. This is how the dastan "Alpamysh" appears, gravitating towards problems of a national scale, in which we find extensive pictures of people's life, leading to global historical generalizations. And therefore the publication of epic works of artistic value and distinguished by a vivid originality plays an extremely important and beneficial role in the spiritual development of mankind.

As you know, "Alpamysh" exists in the oral tradition of many Turkic peoples, however, the Uzbek version has always been recognized as significant in volume, completeness and diversity (content) (according to the version of the folk storyteller Fazil Yuldash-oglu). The Uzbek dastan "Alpamysh" brought to us rich artistic and aesthetic traditions, original perfect poetics and, according to many domestic and foreign scholars, is one of the best examples of the world heroic epic.

If literature and history are, as it were, a fixed memory of the people, diverse, sophisticated, built, then folklore is rather an eternal, ageless self-awareness of boundlessness, inexhaustible strength of its own, both in joy and in trouble. Even in complex plot, rhythmically or verbally sophisticated folklore genres, we are invariably conquered, surprised by the immediacy of the perception of the world, the natural expression of feelings and opinions. Therefore, it is natural that in them, in the most open, most characteristic form, the national features of each

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

nation, its way of thinking, the specificity of its imaginative world are manifested. As a specific phenomenon of folk culture, folklore turns out to be the focus of verbal, musical, theatrical, ethnographic traditions. After all, he is simply the artistic heritage of the people, he is the repository of their enormous spiritual experience, which is so important for cultural life. In one form or another, in this or that genre, the images of the epic rooted in the memory, the lines and melodies of folk songs that pop up every day and, finally, proverbs and sayings that do not leave the language are an important part of our spiritual treasury. The epic "Alpamysh" occupies a special place in this treasury.

The given storytelling and epic creativity of the Uzbek people are distinguished not only by a great genre variety, an abundance of themes, plots, but also by the presence of peculiar local styles characteristic of different historical regions of Uzbekistan and due to the originality of historical, ethnic and socio-economic development.

However, until recently, there was only scant information about the existence and distribution of the Uzbek epic. Separate retellings or extracts from songs and epic poems, the first "records" of legends and traditions, composed by the peoples who inhabited the territory of Central Asia, met in the works of medieval authors. However, it is only extracts and retellings. Since the second half of the last century, Russian and foreign orientologists, travelers, ethno-graphs, diplomats have written down and submitted for publication some samples of Uzbek folklore. On the other hand, in the same period, through the efforts of folklore lovers, and sometimes on the initiative of the folk storytellers themselves, folk dastans were first recorded in the form of separate handwritten lists: "The Legend of Gorogly", "Sanabar", "Dilaram", "Bahram and Gulyandam", "Garib and Shahsanam", "Yusuf and Ahmed", "Tahir and Zuhra", "Tulumbiy" and others. These folklore works, subjected to literary processing, sometimes severely distorted, were disseminated by making copies from them, and starting from the last quarter of the 19th century they were published by typographic and lithographic methods. The level of these publications did not meet the requirements of scientific folklore.

Collection and study of Uzbek folklore on a scientific basis began only in the early twenties of our century. Publications of those years in certain genres (songs, proverbs, oral drama, an excerpt from the wonderful heroic epic "Alpamysh") of folklore were then a real event in cultural life, attracted the attention of the general public to the recordings of folklore.

In the mid-twenties, the collection of folklore material was actually headed by an outstanding scientist, the founder of Uzbek folklore studies Kh.T. Zarifov (1905-1972). On his initiative, such outstanding epic singers as Ergash Jumanbul-oglu, Fazil Yuldash-oglu, Pulkan-Shair, Islam Nazar-oglu,

and many others were identified, etc. The result of the huge collection of Uzbek folklorists was the recording of three hundred epic works covering about one hundred and fifty subjects, among them such large dastans as "Alpamysh", "Yadgar", "Yusuf and Ahmed", "Alibek and Balibek", "Muradkhan", "Rustamkhan", "Shirin and Shakar", an extensive cycle of dastans "Gorogly" (about a hundred dastans), new dastans "Jizzakh uprising", "Mamatkarim-palvan", "Hasan-laborer", "Mardikar", and others ...

One of the most important achievements of Uzbek folklore in the following decades was the preparation and publication of forty volumes, including the best examples of Uzbek folklore of different genres. The extensive scientific series "Studies on Uzbek Folk Art", the capital three-volume edition "Essays on Uzbek Folklore" are accompanied by ongoing publications of folklore texts in the original and Russian translations.

Currently, Uzbek folklorists have begun to implement the publication "Monuments of Uzbek folklore in 100 volumes. A prospectus and principles of publication of this unique collection of Uzbek folklore were previously developed.

Uzbek epic singers (bakhshi) are a special cultural phenomenon that requires special consideration. The oldest and richest traditions of the art of dastan creativity were formed and developed through the efforts of nameless storytellers of many generations in conditions of live performance. The phenomenal memory of outstanding folk storytellers (bakhshi) has preserved in a living oral tradition and brought to pass the multi-component and polysyllabic Uzbek epic, which has a rich history and rooted in antiquity.

The creators and carriers of dastan creativity are usually called bakhshi by the people. Bakhshi sing folk dastans to the accompaniment of a musical instrument, most often a dombra, and in some cases - a kobyz or dutar. For example, such bakhshis as Fazil Yuldash-oglu, Islam-shair, Pulkan-shair, Abdulla-shair, Mardonakul Avliyaku-oglu, Umir Safar-oglu, sang dastans, playing the dombra; Dustyar Khojayar-oglu, Vekmurad Juraban-oglu and others.

From the above it is clear that in the singing of epic works, their transmission from generation to generation, solo singing prevails almost everywhere in Uzbekistan, with the exception of Khorezm, where collective performance dominates - performance in the form of storytelling ensembles. During the performance of the dastan, his poetic texts are sung like songs in a guttural voice, prosaic ones are recited. Bakhshi is the creator, keeper and bearer of the epic tradition; he is an artist of words, who has embodied both creativity and performance; he is and a musician who knows a lot of folk melodies and motives, and sometimes a composer who is able to compose new pieces of music.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

The creative composition of folk storytellers is a phenomenon of great complexity. There are three creative types of Uzbek storytellers: bakhshi performers, bakhshi improvisers and bakhshi poets.

In the development of Uzbek folk dastan creativity, the merits of all three types of storytellers are great. Storytellers-performers ensured the stable preservation of folk dastans in a living oral life. Storytellers-improvisers subjected the canonical text to further artistic refinement, introducing changes into it related to the demands of public life, enriching the traditional text with new episodes, paintings, and thus made a significant contribution to the unification of a number of works in certain cycles. Bakhshi poets, along with fulfilling the function of storytellers of the above two types, directed their invaluable gift to creating new plots, enriching the folk epic, improving it from era to era. The conclusion from the foregoing is as follows: storytellers of all types, being in close relationship with each other, all together, together set in motion the historical and folklore process, and thereby ensured the stable existence of folk dastans in a living oral epic tradition.

Each sample of dastan is a certain creative act, a manifestation of an action that arose in the process of the unity of collective and individual creativity. In this process, the singer's performing and creative activity is manifested in the mainstream of oral epic traditions that have been formed over many centuries. This circumstance gives rise to creative methods common for all storytellers, ways of thinking, plots and motives, constant stylistic formulas, tunes, performing and singing arts. However, this does not deny, but rather presupposes the presence of specific features inherent in individual leading storytellers and storytelling groups, for only stable traditions, perceived by the majority, and firmly assimilated poetic soil in the process of live performance impart the necessary impulse to creative memory and create the basis for the manifestation of the narrator's improvisation.

Dastan is a national epic poem, epic, due to its high ideology, monumentality and artistic excellence, occupies a leading place in the history of the artistic culture of the Uzbek people. The epic is the oldest type of oral folk art. Its origins go back to the epic-heroic period in the life of most peoples.

Uzbek folk dastans arose on the basis of archaic Turkic folklore and the ancient national history of the Uzbek people. They have absorbed the most ancient cultural traditions, and the memory of the formation of their people, its spiritual world and historical destinies, its civic, moral and aesthetic ideals.

The epic is "a story about past times on the scale of heroic idealization", - V. M. Zhirmunsky and Kh.T. Zarifov assert in the book "Uzbek folk heroic epics".

In these fair definitions, the main property, the central content of the folk dastan, is highlighted. A heroic struggle against the enemy for freedom or land, for the salvation of fellow tribesmen or a loved one, revenge for robbery or insult, in the final analysis, is always a battle for the honor of his people. And this turns out to be the main thing in the dastans, if even the initial, and even further not pushed aside, collision is, let's say, a love story or the unexpected development of a dashing youth of a young hero, or something else. Moreover, this most important attitude of the people's creators of dastan determines the inevitable elation, presentation, hyperbolicity in the portrayal of their heroes, their physical and spiritual capabilities, and an equally sharp, reckless belittling of their enemies. Of course, the basis is the idealization of the past, which is usual for the national and individual consciousness, but the freedom of fantasy, which often prompts the frank fabulousness of the plot, dictates the power of aesthetic generalization that is characteristic of the best dastans, epics in general, i.e. artistic embodiment of the people's ideal.

Uzbek folklore studies, which at different times made records of a large number of folk dastans that existed at the time of its appearance, proposed, improving over the years, the classification of the Uzbek folk epic.

These are, first of all, actually heroic dastans "Alpamysh", "Yadgar", whose appearance and epic flesh are closely connected with the life, way of life, customs of the Uzbek tribes. These dastans were created, apparently, when there was a gradual settling of tribes in certain territories, consolidation into a nationality. This process was accompanied by a courageous struggle of the alliance of tribes with external enemies for their independence and provided a wealth of material for heroic dastans. In the course of these battles and wars, new formations and mergers, settlements, movements, the epic arose, "the most important, decisive sign" of which "is the heroic nature of its content."¹ But, on the other hand, as V.M. Zhirmunsky and Kh.T. Zarifov, "the monumental realism of the heroic epic," although "in forms heroically idealized," nevertheless reflects "real social reality. The images of the heroes and the feats they perform exceed the scale of the natural and in this sense are wonderful, but not supernatural: there is no romantic fantasy based on the creative play of fantasy and the subjective fiction of the singer. The miraculous is present in the ancient heroic epic as an element of real folk beliefs, like mythology. Or as a set of everyday superstitions explaining the phenomena of nature and human life from the point of view of mythological or magical thinking. "All these features are especially characteristic of the outstanding Uzbek dastan "Alpamysh"².

¹ Propp V. Ya - Russian heroic epic. - M., 1958.

² Zhirmunsky V.M., Zarifov Kh.T. The indicated works p. 378

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

The Uzbek folk dastan has passed a long way of historical development. The era of the formation of the ancient Turkic epos somewhere borders on the era of the Sakas and Massagets. The epic works of Turkic folklore that preceded "Alpamysh" could well have coexisted and even coexisted in time with those epic blocks, of which only fragments remained today - with "Tumaris", "Shirak", "Siyavush", "Iskander", and with everything that is today considered as a Turkic and Persian or a common Persian-Turkic heritage. In

any case, the assertion, accepted as long as unconditionally true, that all Uzbek folk dastans recorded in our time were created not earlier than the 16th -17th centuries, is subject to the most severe verification. The accumulated observations, if properly summed up, allow us to assert: the time of the creation of "Alpamysh" is the 10th -11th century, and these were options that were mostly close to those with which we are familiar today.

References:

1. Zhirmunsky, V. M., & Zarifov, H. T. (1947). *Uzbek folk heroic epic*. (p.23). Moscow.
2. Zhirmunsky, V.M. (1974). *Central Asian folk storytellers*. (p.63). L..
3. Mirzaev, T. (1986). *The art of Uzbek folk storytellers and features of their epic repertoire*. Abstract of thesis. doct. dis.philol. sciences. Tashkent.
4. Astakhova, A. M. (1966). *Epics. Results and problems of the study*. (p.244). Moscow: L..
5. Kydyrbaeva, R. (1984). *Fairy tale mastery of manaschi*. (p.65). Bishkek.
6. Muhammedov, M. M. (1992). *Social'no-jekonomicheskie problemy material'nogo stimulirovaniya v torgovle*. Doctoral dissertation.
7. Aslanova, D. H., Sattarova, Z. I., & Alimova, M. T. (2016). Regional'nyj turistskij klaster kak instrument povysheniya jeffektivnosti jekonomiki regiona. *Nauchnyj rezul'tat. Jekonomicheskie issledovaniya*, 2(1 (7)).
8. Toirxonovna, A. M., Obloqulovich, U. T., & Tuychiev, I. I. (2020). Institutional Framework for the Development of the Tourism Market. *Indonesian Journal of Law and Economics Review*, 8, 10-21070.
9. Toirxonovna, A. M. (2016). LM, Analysis of trends and forecasting the development of the international tourism market. *SAARJ Journal on Banking & Insurance Research*, 5(1), 50-70.
10. Muhammedov, M. M. (2008). *Zanjatost', uroven' zhizni i gosudarstvennoe regulirovanie rynka truda*.
11. Alimova, M. T., Nasimov, A. R., & Rakhmonov, S. S. (2020). The methodology of the formation of tourist clusters: the example of the regions of Uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14462-14475.
12. Muhammedov, M. M. (n.d.). *Sokrashhenie chislennosti trudovyh migrantov i predlozheniya po povodu dal'nejshego iskoreneniya trudovoj migracii*.
13. Alimova, M. T., Obloqulovich, U. T., & Rakhmonov, S. S. (2020). Asystematic approach to the developmen to the regional tourism market. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14252-14261.
14. Muhammedov, M. M., & Turabekov, S. Sh. (2017). *Źzbekistonda iktisodij Źsish sur#atlarini zhadallashtirishning jangi imkonijatlari. Jekonomika i finansy (Uzbekistan)*, (3), 26-32.
15. Aslanova, D. X., & Alimova, M. T. (2020). Methodology for the identification of tourist clusters: the example of the regions of Uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(6), 14820-14833.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHLI (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](https://doi.org/10.15863/TAS) DOI: [10.15863/TAS](https://doi.org/10.15863/TAS)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 05.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Zulfiya Kamalovna Yuldasheva

Tashkent State Agrarian University

Associate Professor of Plant Science and Oilseed crops, Ph.D.

Aziza Askarjon kizi Ismatullayeva

Tashkent State Agrarian University

Master student of the Department of Plant Science and Oilseed crops

EFFECT OF SOWING NORMS ON YIELD INDICATORS OF VARIETIES OF OILSEED FLAX

Abstract: The article provides data that the effect of the sowing rate of oilseed flax on the yield of local Bahorikor and Russian Fliz, RFN varieties in the conditions of typical irrigated sierozem soils of Tashkent region, weight and yield of 1000 seeds was studied experimentally. In the variant where the sowing rate was 4.0 million units / ha, the seed yield was high and the minimum yield was obtained from the variant with the increased sowing rate per hectare (6 million units / ha). In the experiment, It has shown that the creation of a favorable environment for the cultivation of Fliz in irrigated lands of Tashkent region.

Key words: oilseed flax, variety, variant, sowing rate, yield, elements, pod, seed, branching.

Language: English

Citation: Yuldasheva, Z. K., & Ismatullayeva, A. A. (2021). Effect of sowing norms on yield indicators of varieties of oilseed flax. *ISJ Theoretical & Applied Science*, 11 (103), 305-309.

Soi: <http://s-o-i.org/1.1/TAS-11-103-17> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.17>

Scopus ASCC: 1100.

Introduction

UDC: 633.854.54

Oily flax is a valuable crop that can be used in many ways. The world's sown area of oilseed flax is 2.5-3.2 million hectares annually, the gross yield is 2.0-2.7 million tons. The main countries that grow oilseed flax are India, China, Canada and the United States. About 20 percent of the crops in the CIS countries are oily flax, and in recent years, due to its high content of linoleic acid in oil, the consumption of flaxseed oil has been increasing worldwide due to its medicinal properties.

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On efficient use of available land, rational allocation of agricultural crops for the 2020 harvest and forecast volumes of production" No. 1025 of December 20, 2019 Resolution No. 121 of March 4 for the harvest planned and planted oilseed flax on 5087 thousand hectares of arable land [1,2].

The degree to which the problem has been studied. Bakhmal-2 is the variety of oilseed flax

grown in Uzbekistan. It is grown mainly on dry lands. Flax seeds are sown at 8-12 kg per hectare. In dry lands it is planted in early spring, late February, early March. Seeds are sown at 20-22 kg per hectare in the foothills of dry lands and 25-30 kg per hectare in the mountains. [3,4].

Experts of the Institute of Oilseed Crops recommend sowing 4-5 million pieces of oilseed flax or 30-40 kg / ha of seeds. The lowest sowing rate is selected for early matures, and the highest multiple sowing rate is selected for late-maturing flax [5].

The sowing period of flax seeds is the second half of March and is sown soon. The sowing rate is 35-40 kg / ha on irrigated lands, 16-18 kg / ha on dry lands and 20-25 kg / ha on mountainous lands. Flax is planted in rows 45 cm wide and 4-5 cm deep in an ordinary grain drill [6].

Oripov Sh., Haydarov B. The recommended sowing rate for oilseed flax is 16-18 kg / ha in the plains, 20-22 kg / ha in the foothills and 22-24 kg / ha in the mountains. Flax is sown in rows or ribbons in a

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

simple grain drill with a width of 30, 45 cm, seeds at a depth of 4-5 cm [7]

METHOD AND MATERIALS

Field experiments were conducted in the conditions of typical irrigated Sierozem soils of the experimental field "Center for Innovative Developments and Consulting in Agriculture" of Tashkent State Agrarian University. The methods of "Field experiments" (T. UzPITI 2007), "Methods of field experiment" (B. Dospekhov, 1985) were used in the research.

In the experiment, local oilseed flax varieties were planted in 2020 on March 1 and March 2, 2021, respectively.

The number of replications is 3, the number of options is 12, systematically placed, the planted area is 0.15, the number of counted plants is 20. The area to be taken into account is 28 m². The soil was plowed to a depth of 30 cm in autumn, before plowing mineral fertilizers were applied in the amount of P₈₀K₆₀ and N₅₀ kg of nitrogen per hectare along with planting, in the flowering phase in the amount of 50 kg.

RESULTS AND DISCUSSION

As a result of two years of experience, the number of pods in the plant increased from 101.8 to 139.4 in foreign varieties compared to the local control variety. The data are presented in Table 1.

The local control variety of oilseed flax "Bahorikor" is 3.0 million tons per hectare in the variant in which the seeds were consumed, the number of pods per plant, their weight, the number of seeds in the pods, and their weight differed from those of the other variants studied in the experiment. In this option, 4 mln, it was found that the number of pods was 12.0 more than the variant in which the seeds were used, the weight of the pods was 0.09 grams, the number of seeds in the pods was 12 more and their weight was 0.8 grams heavier. When the sowing norm is 5 mln, it was found to be the number of pods is 2.0 more than the variant, the pods weigh 0.16 grams, the number of seeds in the pods is 22 more and their weight in the fourth option, which is 0.14 grams heavier, the number of pods is 29.0 more than in the 6.0 million high-sowing variant, the pods weigh is 0.25 grams, the number of seeds in the pods is 29, and their weight is 0, 21 grams heavier.

It was found that the number of oilseed flax varieties imported from abroad, the number of pods in the plant, the seeds in it and their weight were 4-5 times higher than the local Bahorikor navigator.

The number of seeds and their weight in the Fliz variety was higher than in the local control variety Bahorikor. In the variant where 4 million seeds were sown per hectare, the number of pods increased by

106.0, the number of seeds increased by 877.7 and the weight was 7.46 grams. In the variant where 5 million seeds were sown per hectare, the number of pods increased by 79.0, the number of seeds increased by 742.0 and the weight was 5.36 grams. In the variant where 6 million seeds were sown per hectare, the number of pods increased by 66.7, the number of seeds increased by 611.3 and the weight was 4.78 grams.

It was found that the yield elements in the fliz cultivar were higher than in the RFN navigator. In the variant of RFN cultivar planted with 3.0 million seeds per hectare, the number of pods per plant was 62.4 less than in Fliz variant and the number of seeds in the pod was 639.6, and their weight was 4.5 grams lighter. In the variant where 4 million seeds were sown per hectare, the number of pods increased by 30.3, the number of seeds increased by 334.7 and the weight was 2.37 grams. In the variant where 5 million seeds were sown per hectare, the number of pods increased by 6.8, the number of seeds increased by 105.6 and the weight was 0.77 grams. In the variant where 6 million seeds were sown per hectare, it was found that the number of pods and seeds in them was the same, as well as the same weight.

In this experiment, the number of yield elements of the Fliz variety was different from that of the Bahorikor and RFN cultivars. In the variant of RFN variety planted with 3.0 million seeds per hectare, the number of pods per plant was 77.0 more than the local variety Bahorikor, the number of seeds in the pod was 1878.2, and their weight was 13.58 grams. In the variant where 4 million seeds were sown per hectare, the number of pods increased by 120.0, the number of seeds increased by 1638.3 and the weight was 11.88 grams. In the variant where 5 million seeds were sown per hectare, the number of pods increased by 105.2, the number of seeds increased by 1369.4 and the weight was 9.89 grams. In the variant where 6 million seeds were sown per hectare, the number of pods increased by 101.8, the number of seeds increased by 1292.6 and the weight was 9.73 grams.

Flax yield also depends on the number of seeds and the weight of the seed. However, the abundance of seeds is not always the basis for high yields. This is because the weight along with the number of seeds ensures an abundant and high-quality crop only if it is at the required level.

Studies have shown that the number of seeds per pod is lower in variants with increased sowing rates. According to the average two-year data, the Bahorikor variety is 3.0 million per hectare the number of seeds per seed of the sown variant was 8.8, while in the variants with increased sowing rate it was 8.1, 7.9 and 7.2.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHIQ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Table-1. Influence of sowing rate on yield content of oilseed flax varieties, average 2020-2021

№	Cultivars	Sowing rates, mln. pcs/ha	In one plant				Weight of 1000 seeds per plant, gr	Relative to Control variant, ±
			Number of pods, pcs	Number of seeds in pods, pcs	Weight of seeds in pods, gr	Number of seeds in one pod, pcs		
1	Bahorikor (st)	3,0	25,0	298,0	1,72	8,8	5,76	
2		4,0	23,3	286,0	1,64	8,1	5,74	
3		5,0	23,0	276,0	1,58	7,9	5,74	
4		6,0	20,0	269,0	1,51	7,2	5,60	
1	Fliz	3,0	164,4	1279,6	10,11	10,3	7,90	+2,14
2		4,0	129,3	1163,7	9,1	10,0	7,85	+2,11
3		5,0	102,0	958,0	7,5	9,8	7,82	+2,08
4		6,0	86,7	880,3	6,8	9,7	7,78	+2,18
1	RFN	3,0	102,0	940,0	6,1	10,0	6,52	+0,76
2		4,0	99,0	929,0	6,0	10,0	6,51	+0,80
3		5,0	95,2	882,4	5,6	9,8	6,40	+0,66
4		6,0	86,8	800,6	5,1	9,7	6,38	+0,78

It can be seen that when the sowing rate is increased, the number of seeds in one pod decreases. This pattern was also observed in imported varieties. The number of seeds per seedling of the variant sown with 3.0 million seeds per hectare in the Fliz variety was 10.3, and in the variants with increased sowing rate was 10.0, 9.8 and 9.7 seeds. The RFN variety was found to have a higher number of seeds per pod than the control variety. In the first variant of the RFN variety, which was sown with 3.0 million seeds per hectare, the number of seeds in one pod was 10.0, and in the variants with increased sowing rate was 9.8 and 9.7. This figure is 1.2 to 2.5 more than the local control Bahorikor variety and almost the same seed shape as the Fliz variety was observed.

Thus, in the conditions of typical irrigated sierozem soils of Tashkent region, the sowing of imported varieties of oilseed flax at a rate of 3.0 million pieces per hectare will ensure the highest number of pods and seeds in the plant.

The seed weight of 1000 seeds of oilseed flax varieties depended more on the characteristics of the varieties than on the sowing norm studied in the experiment. In the second year of the experiment, the weight of 1,000 seeds was heavier.

Based on the results of the experiments, the weight of 1000 seeds was observed in the local control Bahorikor variety, which was 5.60 grams in the variant with an increase of 6 million units, a decrease compared to the variant with a decrease in the sowing rate (5.74, 5.76 grams) detected.

The same pattern was observed in the Fliz variety, where the sowing rate was relatively low (6.78 grams) in the increased variant and, conversely, the heavy 6.90 gram in the variant with a lower sowing rate of 3.0 million per hectare. It was found that this seed was heavier than the 1000 seed weight control Bahorikor variety and RFN variety. The weight of

1000 seeds in the Fliz variety is 1,14; 1,11; 1,08 and 1,18 grams heavier than in the control option and 1,38; 1,34; 1,42 and 1,40 grams heavier than in the RFN variety detected.

The rate of sowing of seeds has a significant impact on the yield of any crop. As the sowing rate increases, the plants grow higher, branching, as well as the number of pods and seeds in them decreases. Seed yield depends not only on the density of the plant, but also on the mass of 1000 seeds is determined by the number of pods in the inflorescence and the number of seeds in them.

Seed yield of oilseed flax depends on the number of seedlings of the plant. The number of pods is important in the yield structure. The formation of pods depends on the number of plant bushes, and the fact that the seedling thickness is too dense also leads to a decrease in yield. The data are shown in Figure 1.

The average yield for 2020-2021 was 17.3 c / ha from the first variant of 3.0 million seeds sown per hectare of local Bahorikor control variety, 19.1 c / ha from the second variant sown with 4.0 million seeds per hectare. it was found to be a more derived variant than the other variants studied in the experiment. The yield from this variant was 1.85 c / ha higher than the first variant, 1.65 c / ha more than the third variant and 2.4 c / ha more than the fourth variant. The lowest yielded variant was found to consume 6.0 million seeds per hectare.

Fliz seed yielded 25.9 c / ha from the first variant planted with 3.0 million seeds per hectare, 27.3 c / ha from the second variant planted with 4.0 million seeds per hectare, which is more than the other variants studied in the experiment detected. The yield from this variant was 1.4 c / ha higher than the first variant, 1.6 c / ha more than the third variant and 2.5 c / ha more than the fourth variant. The lowest yield was 6.0 million seeds per hectare, or 24.8 c / ha.

Impact Factor:

ISRA (India) = 6.317
 ISI (Dubai, UAE) = 1.582
 GIF (Australia) = 0.564
 JIF = 1.500

SIS (USA) = 0.912
 ПИИЦ (Russia) = 3.939
 ESJI (KZ) = 9.035
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

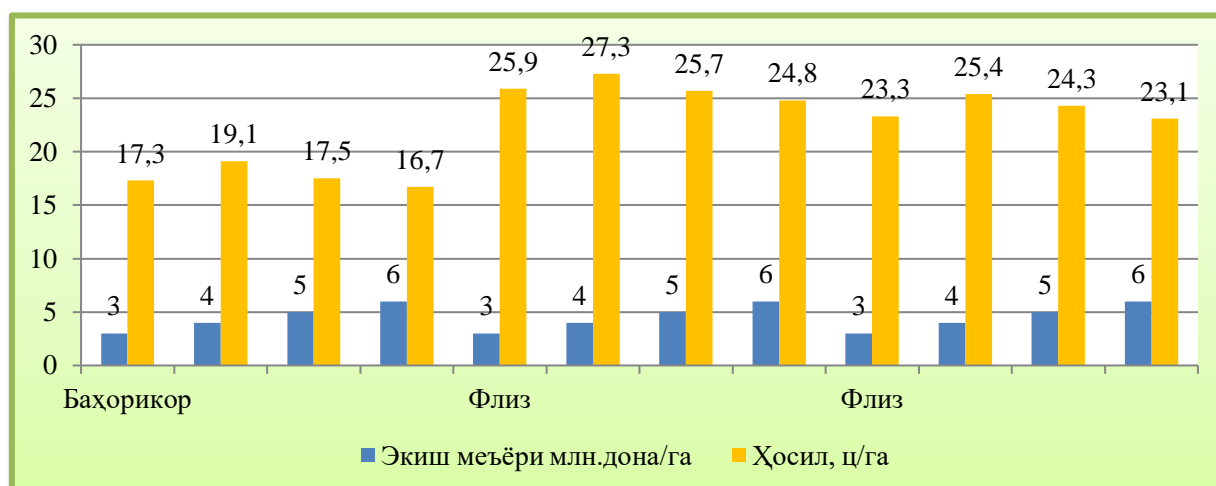


Figure-1. Influence of sowing rate on yield of flax varieties, c / ha (average two years)

The average yield of RFN seeds was found to be 23.3 c / ha from the first variant planted with 3.0 million seeds per hectare, 25.4 c / ha from the second variant planted with 4.0 million seeds per hectare, which is more than the other options studied in the experiment. The yield from this variant was 1.0 c / ha higher than the first variant, 1.1 c / ha more than the third variant and 2.3 c / ha more than the fourth variant. The lowest yield was 6.0 million seeds per hectare, or 23.1 c / ha.

CONCLUSION

Under the conditions of typical irrigated sierozem soils of Tashkent region, local Bahorikor and Russian Fliz and RFN varieties of oilseed flax were sown at a rate of 4.0 million units per hectare were taken. Among the varieties, the Fliz variety was the most productive, while the local Bahorikor variety was the least productive.

References:

- (n.d.). *Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated December 20, 2019 No 1025 "On the efficient use of existing land, rational allocation of agricultural crops for the harvest of 2020 and the forecast volumes of production"*.
- (n.d.). *Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated March 4, 121 "On the efficient use of available land, rational allocation of agricultural crops for the harvest of 2021 and the forecast volumes of production"*.
- Anorbayev, I., & Orolov, X. (2009). Oilseeds. Sunflower. *Journal. Agriculture of Uzbekistan*, №2, 11.
- Nurmatov, Sh.N., Azizov, T.B., Tursunov, L., Anarboyev, I.U., et al. (2012). *Recommendations on agrotechnology for high yields of oilseeds*. (pp.107-112). Tashkent.
- Mirzayev, O.F., & Khudoyberdiyev, T.S. (2003). *Growing fodder*. (p.232). Andijan: Publishing House OAJ.
- Haniev, M.H., Hanieva, I.M., & Shamurzaev, R.I. (2009). Jelementy teh-nologii vozdeyvanija na maslichnogo v KBR. *Jentuziasty agrarnoj nauki, KubGAU*, Vyp. № 8, Krasnodar, pp. 65-70.
- Oripov, Sh., & Haydarov, B. (2017). *Agrotechnology of cultivation of oilseeds on dry lands*. Practical guide. (p.29). Jizzakh.
- Muhammedov, M. M. (1992). *Social'no-jekonomicheskie problemy material'nogo stimulirovanija v torgovle*. Doctoral dissertation.
- Aslanova, D. H., Sattarova, Z. I., & Alimova, M. T. (2016). Regional'nyj turistskij klaster kak instrument povyshenija jeffektivnosti jekonomiki regiona. *Nauchnyj rezul'tat. Jekonomicheskie issledovanija*, 2(1 (7)).
- Toirxonovna, A. M., Obloqulovich, U. T., & Tuychiev, I. I. (2020). Institutional Framework for the Development of the Tourism Market. *Indonesian Journal of Law and Economics Review*, 8, 10-21070.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

11. Toirxonovna, A. M. (2016). LM, Analysis of trends and forecasting the development of the international tourism market. *SAARJ Journal on Banking & Insurance Research*, 5(1), 50-70.
12. Muhammedov, M. M. (2008). *Zanjatost, uroven` zhizni i gosudarstvennoe regulirovanie rynka truda*.
13. Alimova, M. T., Nasimov, A. R., & Rakhmonov, S. S. (2020). The methodology of the formation of tourist clusters: the example of the regions of uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14462-14475.
14. Muhammedov, M. M. (n.d.). *Sokrashhenie chislennosti trudovyh migrantov i predlozhenija po povodu dal`nejshego iskorenenija trudovoj migracii*.
15. Alimova, M. T., Obloqulovich, U. T., & Rakhmonov, S. S. (2020). Asystematic approach to the developmen to the regional tourism market. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14252-14261.
16. Muhammedov, M. M., & Turabekov, S. Sh. (2017). *Ўzbekistonda iktisodiy ʻsish sur#atlarini zhadallashtirishning jangi imkonijatlari. Jekonomika i finansy (Uzbekistan)*, (3), 26-32.
17. Aslanova, D. X., & Alimova, M. T. (2020). Methodology for the identification of tourist clusters: the example of the regions of Uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(6), 14820-14833.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 05.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sirojiddin Turdikulovich Jurayev

Tashkent state agrarian university

Candidate of agricultural science, TSAU

Tashkent region, Kibray district, University street 2.

juraev.197817@mail.ru

YIELD OF COTTON LINES IN DIFFERENT CLIMATIC-SOIL CONDITIONS OF UZBEKISTAN

Abstract: It has been carried out an assessment of cotton lines' yield related to *G.hirsutum L.* in the Tashkent, Fergana and Kashkadarya regions of the republic of Uzbekistan. It was analyzed 10 lines with different genetic origin, identified productivity of assessment of influence genotype and environment on the yield. Results of three-year experiments showed that the environment to a greater extent affects the variability of the trait than the genotype. For determining optimal variant of the genotype-geographical point, it is necessary to carry out a series of tests.

Key words: cotton, Fergana, Kashkadarya.

Language: English

Citation: Jurayev, S. T. (2021). Yield of cotton lines in different climatic-soil conditions of Uzbekistan. *ISJ Theoretical & Applied Science*, 11 (103), 310-313.

Soi: <http://s-o-i.org/1.1/TAS-11-103-18> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.18>

Scopus ASCC: 1100.

Introduction

UDC: 633.511:575

Modern methods make it possible to achieve an increase in the effectiveness of breeding, especially usage of various ecological-geographical zones is becoming more and more widespread [1]. It has been determined that the yield of spring barley in the Central region of Russia depends by 50 % on the conditions of the season, 25 % falls on the place of study and about 15 % on the genotype [2]. Combination of the interaction of these three factors determines the assessment of the variety in a particular in the place of experiment.

As a technique for increasing accuracy of assessing a variety by yield, without lengthening the timing of its study, Nettevich E.D. (2001) recommends sowing it in one year at several points.

Simultaneous study of a variety at the several points with varying sowing dates, predecessors, fertilizers and other factors is more informative compared to growing it by using various technologies at on point.

MATERIALS AND METHODS

The aim of the research was to determine the influence of the genotype, environment and their interaction on the yield of cotton lines that are different in their origin, as well as the selection of the most productive lines in a particular region, which showed the stability of trait over the years. The experiments were carried out in the Tashkent, Fergana and Kashkadarya regions of the republic in a randomized manner, in four replicates. To determine the influence of genotype and environmental factors on the variability of the trait, were used two-way analysis of variance with repetitions.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Table-1. The indicators of cotton lines' yielding c/ha (2018-2020 y.)

Regions	Lines index	2018 y.	2019 y.	2020 y.
Tashkent (Salar)	481	33.9	25.6	33.0
	595	20.2	22.0	25.7
	655	34.8	20.5	33.1
	681	31.4	27.7	33.6
	705	31.9	31.9	32.9
	752	16.4	21.0	32.7
	765	38.1	23.4	33.5
	782	23.2	22.0	27.8
	956	17.6	24.4	27.8
	998	32.9	30.5	31.8
	St. Namangan 77	24.5	29.1	35.0
	St. C-6524	22.6	27.9	35.7
Fergana (Kuva)	481	37.6	34.0	32.6
	595	40.1	39.6	43.5
	655	34.9	31.1	42.2
	681	40.2	42.0	47.3
	705	39.1	42.6	42.4
	752	31.3	38.1	38.1
	765	40.4	36.9	48.1
	782	36.8	44.1	40.1
	956	33.3	40.3	45.8
	998	37.8	45.7	44.7
	St. Namangan 77	26.0	31.2	32.2
	St. C-6524	24.8	28.7	31.9
Kashkadarya (Kasbi)	481	32.2	33.6	37.3
	595	24.0	38.9	32.0
	655	32.8	27.8	35.4
	681	29.1	38.4	43.8
	705	32.6	39.4	38.8
	752	26.5	36.0	34.3
	765	33.3	34.9	35.3
	782	24.4	45.1	31.6
	956	24.5	39.6	27.5
	998	34.7	35.8	25.9
	St. Namangan 77	32.4	33.4	36.6
	St. C-6524	28.8	32.1	36.0

As we see from the 1-table, the average yield indicators for three regions in 2018 for the studied lines significantly differed from each other. The most productive of them was the line 765 with yield 37.3 c/ha. In five studied lines (681, 655, 705, 481, 998) the yield ranged from 33.6 to 35.1 c/ha. For three lines 956, 595 and 782 this indicator was at the level of 25.1, 27.8, 28.1 c/ha, respectively. The lowest yield

was noted for the line 752 with 24.7 c/ha. The yield of most lines varied greatly across regions. Moreover, in two groups of lines (in Tashkent and Kashkadarya regions, the average yield in the group was approximately the same 28.0 and 29.4 c/ha. The average yield for the group tested in the Fergana region turned out to be much higher than 37.1 c/ha.

Table-2. Dispersion analysis of cotton lines' yielding (2018 y.)

Source of variation	SS	df	MS	F	P-value	F-critical
Sample	2256.307	9	250.7008	10.23363	1.04E-10	1.985595
Column	1884.432	2	942.2159	38.46133	8.47E-13	3.097698
Interaction	960.2455	18	53.34697	2.177628	0.008679	1.719592
Within	2204.797	90	24.49775			
Total	7305.781	119				

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Genotype	30.9%					
Habitat	25.8%					
Interaction	13.1%					
Random deviations	30.2%					

Two-way ANOVA of yield showed significant effects on yield of both the genotype factor and the environmental factor. Thus, the share of the variability of the trait was 30.9 % in our experiments, and the environment influences by 25.8 % (table-2). The interaction of these two factors was also significant – 13.1 %.

In 2019, in the Tashkent region determined the most productive line L-705 with 31.99 c/ha, in

Fergana L-998 with 45.75 c/ha, in Kashkadarya L-782 with 45.12 c/ha (table-1). The L-655 line turned out to be the least productive an all three regions. The yield in the regions was 20.54, 31,11 and 27.81 c/ha, respectively. Should be noted that the best lines L-595 (39.67 and 38.99 c/ha) and L-681 (42.02 and 38.49) in terms of productivity in the Tashkent region, didn't turn out high yield in two other regions.

Table-3. Two-way ANOVA for the yield of cotton lines 2019 y.

Source of variation	SS	df	MS	F	P-value	F-critical
Sample	1405.576	9	156.1751	8.380372	5.56E-09	1.985595
Column	4848.787	2	2424.393	130.0932	2.8E-27	3.097698
Interaction	659.4107	18	36.63393	1.96578	0.019839	1.719592
Within	1677.224	90	18.63582			
Total	8590.997	119				
Genotype	0.16					
Habitat	0.56					
Interaction	0.08					
Random deviations	0.20					

Two-way analysis of variance for yield in 2019 showed significant differences between groups of lines by region. However, the share of the influence of the genotype on the yield was small, namely 16 % (table-3). On the contrary, the share of the influence of the environment on the yield was higher and amounted to 56 %. Interaction of genotype-environment factors in our experiment was 8 %, and the share of unaccounted for factors on yield was 20 %.

In 2020, the studied lines showed different yields. Thus, the average indicators for the three regions varied from 33.2 c/ha for line 782 to 41.6 c/ha for line 681 (table 1). There was also a significant difference in yield among the groups tested in different regions. The indicators was observed in the Fergana region of 42.5 c/ha on average for the group. In the Tashkent region, this indicator was 31.2 c/ha and in Kashkadarya 34.2 c/ha. The yield of the overwhelming majority of lines greatly depending on the region of cultivation.

Table-4. Two-way ANOVA for the yield of cotton lines 2019 y.

Source of variation	SS	df	MS	F	P-value	F-critical
Sample	848.4592	9	94.27325	3.802498	0.000423	1.985595
Column	2741.44	2	1370.72	55.2878	2.18E-16	3.097698
Interaction	1242.766	18	69.04257	2.784822	0.00075	1.719592
Within	2231.321	90	24.79245			
Total	7063.987	119				
Genotype	12.0%					
Habitat	38.8%					
Interaction	17.6%					
Random deviations	31.6%					

Two-way analysis of variance for yield in 2020 revealed significant differences in yield both between lines and between groups of lines by region (table 4). In this experiment, as in the previous year, the yield was largely influenced by the environment – 38.8 %,

the genotype influenced 12 %, the share of their joint influence was 17 %. The unaccounted-for factors turned out to be quite significant – 31.6 %.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

CONCLUSIONS

Thus, the significant influence of the environment on the yield indicates the complex structure of this trait. Lines 681 and 765 were identified, which showed consistently high yield rates. The results of this experiment allow us to conclude

that when selecting for cotton yield, it is necessary to consider that the environment significantly affects it, and in order to find the optimal variant of the genotype-geographical point, it is necessary to conduct a number of analysis in different cultivation regions.

References:

1. Kilchevskiy, A.B., & Khotileva, L.V. (1989). *Interaction of genotype and habitat in the breeding of crops*. Institute of genetics and cytology. AS BSSR. (p.19). Minsk: Science and technique.
2. Nettevich, E.D. (2001). Influence of cultivation conditions and duration study on the results of assessment a variety by yield. *Vestnik RASXN*, Number 3, p. 34.
3. Dospekhov, B.A. (1985). *Field experiment technique*. (p.351). Kolos.
4. Kilchevskiy, A.B. (1997). *Ecological breeding of plants institutes of genetics and cytology of SA of Belorussia*. (p.372). Minsk: technology.
5. Muhammedov, M. M. (1992). *Social'no-jekonomicheskie problemy material'nogo stimulirovaniya v torgovle*. Doctoral dissertation.
6. Aslanova, D. H., Sattarova, Z. I., & Alimova, M. T. (2016). Regional'nyj turistskij klaster kak instrument povysheniya jeffektivnosti jekonomiki regiona. *Nauchnyj rezul'tat. Jekonomicheskie issledovanija*, 2(1 (7)).
7. Toirxonovna, A. M., Obloqulovich, U. T., & Tuychiev, I. I. (2020). Institutional Framework for the Development of the Tourism Market. *Indonesian Journal of Law and Economics Review*, 8, 10-21070.
8. Toirxonovna, A. M. (2016). LM, Analysis of trends and forecasting the development of the international tourism market. *SAARJ Journal on Banking & Insurance Research*, 5(1), 50-70.
9. Muhammedov, M. M. (2008). *Zanjatost, uroven` zhizni i gosudarstvennoe regulirovanie rynka truda*.
10. Alimova, M. T., Nasimov, A. R., & Rakhmonov, S. S. (2020). The methodology of the formation of tourist clusters: the example of the regions of uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14462-14475.
11. Muhammedov, M. M. (n.d.). *Sokrashhenie chislennosti trudovyh migrantov i predlozheniya po povodu dal'nejshego iskoreneniya trudovoj migracii*.
12. Alimova, M. T., Obloqulovich, U. T., & Rakhmonov, S. S. (2020). Asystematic approach to the developmen to the regional tourism market. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 14252-14261.
13. Muhammedov, M. M., & Turabekov, S. Sh. (2017). *Ŷzbekistonda iktisodij ŷsish sur#atlarini zhadallashtirishning jangi imkonijatlari. Jekonomika i finansy (Uzbekistan)*, (3), 26-32.
14. Aslanova, D. X., & Alimova, M. T. (2020). Methodology for the identification of tourist clusters: the example of the regions of Uzbekistan. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(6), 14820-14833.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 05.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Albina Khodzhaevna Rakhmanova

Navoi State Pedagogical Institute
Candidate of Philology, Associate Professor, Department of
Russian Language and Literature, Uzbekistan,
alya211@list.ru

Guzal Erkinovna Rakhmonova

Navoi State Pedagogical Institute
applicant

BUNIN AND HIS VISION OF THE SACRED TRUTHS OF THE QURAN

Abstract: This article analyzes the specificity of the embodiment of the Quranic truths in the work of I. Bunin, emphasizes the importance of I. Bunin's understanding of the codes and ciphers of the Holy Book of Muslims of the Quran, clarifies the features of the embodiment of the sacred meanings of the Quran in the writer's poetic heritage. The article discusses verses that are directly consonant with the themes of various Quranic suras. The exact adherence of the verses to the Quranic meaning and connotation is revealed. At the same time, each poem of the Qur'anic cycle is an original continuation of the theme of the source.

Key words: Sacred meanings of the Quran, secrets of the East, codes and ciphers of the Quran's truths, Bunin's concepts, sacredness of truth.

Language: English

Citation: Rakhmanova, A. Kh., & Rakhmonova, G. E. (2021). Bunin and his vision of the sacred truths of the Quran. *ISJ Theoretical & Applied Science*, 11 (103), 314-318.

Soi: <http://s-o-i.org/1.1/TAS-11-103-19> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.19>

Scopus ASCC: 1200.

Introduction

The work of I.A. Bunin, being a unique reproduction of the main problems of mankind, in the philosophical and ethical terms is closely intertwined with the mythopoetic and aesthetic East. "The East attracted Bunin to itself as a historical mystery and as a world problem ... " [7,126]. Significant personal experience of acquaintance with the countries of the East, its shrines, myths, legends, architectural monuments and literary works had a great influence on the formation of the writer's artistic understanding of the world and on the poetics of his works.

Unlike many writers who treat the East as a picture and exotic, Bunin approached this topic responsibly and his original thinking immediately distinguished his work. Bunin considered, - writes V.N. Muromtseva. that "the environment, character and color should arise from what he saw and, most importantly, felt material" [6, 126].

After analyzing much of his "Eastern reflections", we came to the conclusion that the East

for him was the cradle of mankind, a prehistoric paradise. If A. Pushkin "stroved to the East in search of the important and the main thing in the concept of himself" [2, 118], then M. Lermontov and I. Bunin were looking in the East precisely for the origins of world culture, the fundamental principles of human society. Bunin's ideal was in the past, but not in savagery, primitiveness, but in civilization, in the highest sense of the word. His understanding of the Holy Book of Muslims - the Koran was so deep and heartfelt that one got the impression of a brilliant knowledge of many of the postulates of Islam by Bunin.

Research methods: overview and theoretical comprehension and analysis, systematization and classification, interpretation and conceptual analysis.

Results: Working with the Koran, Bunin skillfully used many Muslim concepts, inserting direct tracing copies from the Arabic language into the texts of his poems: "Koran", "Elif. Lam. Mime"; Al-Qadra;

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Jannat; "Stone of the Kaaba"; "dervish"; "Temjid"; "Mecca"; Ihram, etc.

Undoubtedly, that not all words were correctly voiced by Bunin in Russian, but something else is important here. The ability to see the main words of Islam in the complex speech of the Arabic language, to highlight the necessary words and phrases in the syntax, of course, speaks not only of the poet's poetic flair, but also of the thoughtfulness of the choice. Such a selection of words is deliberately created by Bunin to denote the community and unity of the space of all mankind, they do not sound like foreign inclusions in the Russian text, but very organically enter the general text, creating a pleasant polyphony of the diversity of life.

Arabic words in Bunin's "oriental" works are key concepts, with the help of which not only the main theme of the work becomes clear, but also its subtext becomes obvious. The author, in his own way, rethinks the themes of parables and legends of the East, gives them a new symbolic meaning. But at the same time he relies on his own impressions of his meeting with the modern East.

Discussion: Bunin became the first Russian poet to be so deeply imbued with the psychology and spiritual world of an Eastern person. No one else "conveyed so accurately and in detail information about the religious culture of Muslims through poetic lines" [3,87].

Bunin pushes the boundaries of the concepts of "faith", "memory", "spirituality", creating in his poems a synthesis of East-Western culture. Unlike the poets of the Silver Age, he prefers to create not oriental, stylized texts for oriental lyrics, but original ones, marked by a deep knowledge of oriental culture ("Mekam", "Temjid", "Bedouin", etc.). At the same time, Bunin's poetry contains many transcriptions of the Koran, there are translations, commandments, and wills written in the Arabic style.

Singing the East, Bunin did not forget about the romantic and loving sound of the oriental flavor. It is enough to read his poem "Zeynab" (1903-1906) to feel the breath of the "Thousand and One Nights", conveyed by the poet-traveler:

Zeinab, the freshness of your eyes! You are an Arabian jug:

The more stuffy in the tents of the desert,
The faster the scorching khamsin blows,
The colder the water is in the jug.

Zeinab, the freshness of your eyes! You are strict and proud:

The crazier you love, the stricter you are.
But sweet oh sweet ice water
And for the traveler - life is more precious!

And again Bunin speaks with the realities of the oriental attitude. The figurative line of the verse is very interesting, the metaphors and comparisons are

magnificent. Bunin creates the atmosphere of the eastern desert and, it should be noted, speaks about it quite accurately. Bunin is not by hearsay familiar with the life of people living in the desert, where the main value is water. This is where the metaphor "Arab jug" comes from - inside of which the deep meaning of the female essence is hidden. The poet, in an oriental way, from afar, gives a comparison of a woman and her beauty with cold water ("and what can be more beautiful than cool water in a sweltering hot desert" [4,16]). Arab realities emphasize the poetic images of the poet-Bunin: "scorching khamsin" (dry, exhaustingly hot desert wind) accurately indicates the reality of the desert climate; A wet cloth-wrapped jug exposed to the wind makes the water in the jug cool without refrigeration. Oh, East! Oh, the wisdom of the sands! - read in the text. The beauty and severity of Zeynab, her ardent disposition are akin to sweet ice water, which is more valuable for a traveler than life. This text conveys the poet's ability to feel time and space, speaks of the poet's subtle and heartfelt feeling of the real designations of oriental nature. It penetrates into the structure of the traditional attributes of Eastern lyric poetry (traveler, desert, prayer), it creates "a special world of the Eastern attitude, where the Holy Book of Muslims - the Koran, becomes the main thing" [10, 178]. Reading and passing through himself the figurative and poetic essence of the Holy Book, Bunin creates incredibly strong and bold poems. So in the poem "The stars are burning over a deserted land ..." Bunin comes very close to the theme of the mysterious correlation of the world of people and special Koranic entities that disturb the world with their unpredictability and mystery.

The stars burn over the desolate land
The holy constellation Canis shines regally:
Suddenly it got dark - and like a fiery red snake
Someone cut the heavens over the dark land.

Traveler, do not be afraid! There are many wonderful things in the desert.

These are not whirlwinds, but the genies disturb her,

This is the archangel, the servant of the merciful God,

Threw a golden spear into the demons of the night

(1903) [1, p. 63].

It should be noted that in the study of the East, Bunin structures his understanding of this reality with special concepts. These concepts saturate the understanding of the theme of the East, make it incredibly deep and multifaceted in Bunin's understanding. That is why Bunin's concepts are so important in terms of revealing the depth of this topic and one of the favorite images of this plan, a bright concept of the East - a desert. For Bunin, this is one of

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

the most important mysteries of human existence. In the desert there is a secret of the East, it is its main song, a fine line of connection with the eternal: "in the desert there are many wonderful things" [1.63]. Bunin feels this soul of the oriental attitude, which is why he gives the desert, as a repository of many world secrets, such a place in this cycle of poems. This text, in our opinion, was inspired by the fifty-third surah of the Koran "Star" ("An-Najm"). [5, 553] This chapter speaks of the star of Sirius in the constellation of the Dog: "And only he is the Ruler of Sirius of power." (Quran: 53:49). [5, 553]. In the comments to the Quran it is stated that "Sirius is the brightest star in the constellation Canis. Her blue glow evoked both horror and awe among the pagans, who worshiped her as God" [5, 771]. Hence, it becomes clear Bunin's use of the expression "the holy constellation of the Dog". In this regally strong and endless space, from time to time, phenomena occur that, according to the poet's understanding, do not occur by themselves. The desert, like everything around, is subject to God and in this endless space of darkness, separate flashes of light remind us of his presence and greatness. Bunin manages to "feel the depth and power of the hidden divine values" [8, 117], through a subtle understanding of the real phenomena of the East.

It should be noted that initially the poem "The stars burn over the deserted land ...", Bunin published in the collection of the publishing house "Knowledge" in 1905, under the title "Djinn". Then the title was removed by Bunin himself. Another mystery of the work of the Genius. Bunin did not want to talk about genies and give them an important idea and problem of the verse? We think that this was the reason for the removal of the title, since the meaning of the poem lies in something else. Bunin talks about the mystery of the desert, speaks of the fullness of this concept with a special inner perception of the mysteriousness of the existence of the East, which has yet to be revealed to the European reader.

The word "jinn" (Arabic: "hidden, hidden") is translated as spirit, invisible force. Jinn are spirits in Arab mythology. In the pre-Islamic era, the Jinn were worshiped by the Arabs as gods. According to the doctrine of Islam, "jinn were created from a pure smokeless flame, they are not perceived by any of the five basic human senses, live in parallel with people, but appeared before them and are just as susceptible to faith / disbelief in Allah" [8, 228]. In the comments to this poem, we find similar information: "Jinns ("geniuses"), according to Muslims, are the spirits of mountains, deserts, oases. They are born and die as people, although their nature is different (they are created from fire); jinn can be faithful and unfaithful, good and evil; shooting stars are fiery spears with which the angels drive away the jinn sneaking up to the sky in order to overhear what they are talking about" [1, 463]. Nevertheless, it is interesting that in the Qur'an the seventy-second surah also has the name

"Jinn" ("Al-Jinn"): "We hid there on our seats, To hear what they say; But whoever wants to hear now, Will find there for himself a hot light waiting for him." [598] Bunin was able to feel the greatness of this sura, and this can explain the deep thought of the poet in this text. In this stanza, the poet raises another important topic, sura 53 of the Koran. "This is an archangel, a servant of a merciful God // He threw a golden spear into the demons of the night" [1, 63]. We are talking about the archangel Gabriel. The Holy Quran gives us the following: "He appeared in all his majesty At the highest point of the horizon. Then he approached and sank down And was at a distance of no more than two flights of a bow" (Koran: 53: 6-9) [5, 551]. Bunin's amazing closeness to the Koran speaks of Bunin's careful and respectful attitude to the text of the Holy Book, he not only shows his knowledge of the verses and suras of the Koran, but also very carefully treats the Holy text itself, not allowing himself to change the lines.

Developing the themes of the Koranic suras, we note in Bunin, a very close acquaintance with the Holy text of the Koran, a tactful approach to everything that he takes as an object depicted. We find a truly oriental attitude in another work of the poet, "The Night of Al-Qadr" (1903). Understanding how important this topic is for every devout Muslim, we will try to trace the degree of the topic's opening in the creative perception of Bunin. Bunin prefaces the poem with an epigraph from the Holy Quran: "On this night, angels descend from heaven. Koran"

Night of Al-Qadr. The peaks converged,
merged,
And their turbans were erected higher to the
heavens.
The muezzin sang. Ice floes are still scarlet
But from the gorges, from the valleys, the cold
of darkness is already breathing.

Night of Al-Qadr. On dark mountain slopes
Clouds are still descending, exfoliating.
The muezzin sang. Before the great Throne
The Diamond River is already flowing
steaming.

And Gabriel - inaudible and invisible -
Bypasses the sleeping world. Lord bless
The unseen path of the holy pilgrim
And give your land a night of peace and love!
[1, 63].

The title of the poem duplicates the title of the ninety-seventh surah of the Qur'an - "Night of Greatness" ("Al-Qadr"): "We ordered the Qur'an to descend on the night of Al-Qadr. How can I explain to you what the "night of al-Qadr" means? It is dearer than a thousand fruitless months! On this night, angels

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

and the Holy Spirit Descend from heaven from God's will, To carry out all his commands. And on this night before dawn, Peace reigns over the whole earth. " (Quran: 97: 1-5) [5, 627].

As you can see, the epigraph to the poem is taken from the 4th verse of this sura. In the four-volume collected works of Bunin in 1988, the commentary to this poem notes: "The night of Al-Qadr ("the night of power", "the blessed night") - according to Muslim tradition, the night when the angel Gabriel (whom God commanded to convey to Mohammed the words of the Koran for announcements to people), descending from heaven, first appeared to Mohammed, who was lying on the ground and immersed in thoughts about God. According to tradition, this night falls on the 24th of the month of Ramadan. On this night, the affairs of the Universe are approved and resolved for a year. The Great Throne is the throne of God in the seventh - the highest heaven" [1,463]. And in the comments to this poem, written to the 1965 Collected Works of the poet, we see a slightly modified version of the information: "According to tradition, this night falls from the 26th to the 27th day of the month of Ramadan." The fact is that in both comments there is no single date for the nightfall of Al-Qadr. As you know, there is no exact information about this in the Qur'an either. The sacred hadiths about the life of the Prophet Muhammad say the following: "Indeed, the night of predestination was shown to me, and then it happened that I forgot it. But wait for her on one of the odd nights of the last decade of Ramadan ..." [11, 18]. The greatness and power of this night is also mentioned in the third verse of Surah Al-Qadr. According to the Koran, this night is "More expensive than a thousand barren months!" [5, 627]

Bunin poetically reproduces the information received and calls the night of Al-Qadr - "the night of peace and love." Sources commenting on this blessed chapter of the Quran say that "The night of predestination is a happy night, in which evil is not done and devils are not sent. On this night, rebellious jinn are chained, and mighty jinn are tied up, and all the gates of heaven are opened, and repentance is accepted from all those who repent, and therefore Allah said: "She is safe until dawn" [5, 1042].

Of great interest in the poem "The Night of Al-Qadr" is also the image of the holy pilgrim - the Archangel Gabriel. Bunin understands the greatness of this angel, and he is a fairly frequent guest in the writer's creations. "Archangel Gabriel is one of the angels in Judaism, Christianity, and also in Islam (where he is known as Jibril (Jabrail)). This name literally means "The Most High is my strength." In Islam, Jibril (Jabrail) is one of the four angels especially "close" to Allah. Jibril is the main mediator between Allah and the prophets, including Muhammad; according to legend, he descended to Muhammad twenty-four thousand times" [10, 178]. In the Qur'an, he is mentioned as the patron saint of

Muhammad, who protects him along with Allah from unbelievers. Through Jibril, Allah sent down a revelation to Muhammad - the Koran. Bunin highly appreciates the image of the Archangel Gabriel, calling him a "holy pilgrim," an eternal dervish. Here we also trace the roll call with the eighty-sixth surah of the Koran "Night Traveler" ("At-Tariq"): "In the sign of the sky and the one walking in the night! How can I explain to you what it means "walking into the night"? The star that cuts the sky with its light. There is not a single living soul That does not have a guard over itself", [Koran: 86]. [5, 619]. We meet the same vivid image that "cut through" the heavens with a "fiery red snake" in Bunin's poem "The stars are burning over the deserted land ..." The exoticism of the described serves to reveal the main idea of the poet - to convey the greatness and beauty of that night, its well-being, peace and tranquility. The use of repetitions of whole phrases and especially pauses, as it were, helps us to think and plunge into the light atmosphere of the night of Al-Qadr. Bunin is characterized by amazing metaphors, subtle epithets, comparisons and personifications. The snow-capped mountain peaks are endowed with eastern attributes - a turban, a diamond river, evokes associations with the paradise river of abundance al-Kausar, to which a separate surah is dedicated in the Koran. The water of this river is "whiter than milk and sweeter than honey" [5, 1062]. We find confirmation of this information in the appendix to the Koran ("Dictionary of Arabic Expressions and Terms"): "Al-Kausar is a river of abundance, that is, a heavenly river, the water of which is whiter than milk and sweeter than honey. Its fragrance is more beautiful than the fragrance of musk, and birds with beautiful long necks, similar to the necks of camels, fly around it" [5,1062].

Conclusion: We think that in the structural aspect of these texts, the figurative and linguistic elements of Bunin's poetics are brilliantly presented. The construction of the stanza, special syntax, repetitions, pauses serve not only to correctly perceive the poems, but also give them a special solemnity and majesty of the theme. The sacredness of the motives is conveyed by the special musicality of the poems, their melodiousness; This is also facilitated by the sound organization of the verse, built on the reception of euphony (repeated repetition of sounds -s-sh-z-), the use of through rhymes - converged - merged - erected (amplification method - gradation).

Bunin achieves a special degree of "touch" in these texts, his concept of the East manifests itself in full measure of poetic rethinking of images, he "makes" them "work" in the key he needs. We see with what deep caution Bunin reproduces not only the attributes of Islam (Al-Qadr, Jannat, Allah, Sakar, Kovser, etc.), but also conveys the very spirit of faith, because all of his oriental verses are constructed in epic majesty.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Bunin's text is not just a borrowing, a retelling of heard any legends, legends from the Koran, it is always an accurate reproduction of plots, images and names of individual Koranic suras. (An-Najm, Al-Jinn, Al-Qadr, Al-Kausar, etc.), which once again testifies to Bunin's direct appeal and deep respect to the text of the Holy Book.

One of the researchers of the writer's creativity notes that: "the main aspect of Bunin's oriental poetry is the depiction of a person of the East and the recreation of the oriental environment." The researcher states that Bunin, as a writer, manages to perceive the East, "without the arrogance of a

European, simply and naturally depict the Eastern way of life, which has its own meaning, its truth everywhere" [9, 124].

Bunin remarkably succeeds in penetrating the world of important Muslim shrines. He pushes the boundaries of the concepts of "faith", "memory", "spirituality", creating in his poems a synthesis of East-Western culture.

Unlike many, he prefers to create not oriental, stylized texts for oriental lyrics, but original works marked by a deep knowledge of the oriental worldview and culture.

References:

1. Bunin, I.A. (1988). *Collected works in 4 volumes*. Moscow: Vol. 1.
2. Blagoy, D.D. (1967). *The creative path of Pushkin*. Moscow: Sov. writer.
3. Dvinyatina, T. M. (2014). *Comments // Bunin I. A. Poems: In 2 volumes. Vol. 2 / Vstup. article, comp., pod. text, note. T. M. Dvinyatina. (p.379)*. SPb.: Publishing house of Pushkin House, Vita Nova.
4. Zarrinkub, A. (2012). The value of the Sufi heritage. *Iran-name*, No. 4, pp. 5–51.
5. (2001). *Quran*. Translation of meanings and comments by I.V. Porokhova. –Moscow.
6. Muromtseva-Bunina, V.N. (1989). *Memories of Bunin*. –Moscow.
7. Ninov, A. M. (1984). *Gorky and Iv. Bunin. Relationship history*. Problems of creativity: Monograph. (p.248). L..
8. Nasyrov, I.R. (2009). *Foundations of Islamic mysticism (genesis and evolution)*. (p.552). Moscow: Languages of Slavic Cultures.
9. Light, V.E. (1988). *The material world as an element of the oriental environment in the oriental poetry of Bunin*, Mutual influence and continuity of literatures. Tashkent.
10. Smirnov, A. (2011). *The path to truth: Ibn Arabi and Nikolay Berdyaev (on two types of mystical philosophizing)*. Stone of Faith. Spiritual heritage of Christianity and Islam. (pp.175-207). Moscow: Islamic Culture Research Foundation, Magic Mountain.
11. (1994). Imam al-Bukhari. Sunnah of the Prophet Muhammad / trans. V.M. Nirsha. *Science and Religion*, No. 1–12.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 05.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sh. Sadullaeva

Tashkent University of Information Technologies named after Muhammad al-Khwarizmi
Prof. of "Multimedia Technologies" department
Tashkent, Uzbekistan
orif_sh@list.ru

Z. Fayzullaeva

Tashkent University of Information Technologies named after Muhammad al-Khwarizmi
assistant of "Basics of Computer Science" department
Tashkent, Uzbekistan
nigor1802@mail.ru

INVESTIGATION ON SELF-SIMILAR ANALYSIS OF THE PROBLEM BIOLOGICAL POPULATION KOLMOGOROV-FISHER TYPE SYSTEM

Abstract: In this work we considered a parabolic system of two quasilinear reaction-diffusion equations for a biological population problem of the Kolmogorov-Fisher type describes the process of a biological population in a nonlinear two-component medium. We studied the qualitative properties of the solution to Cauchy problem based on self-similar analysis and its numerical solutions using the methods of modern computer technologies, to study the methods of linearization to the convergence of the iterative process with further visualization.

Key words: Cauchy problem, quasilinear, reaction-diffusion, biological population, numerical solutions.

Language: English

Citation: Sadullaeva, S. H., & Fayzullaeva, Z. (2021). Investigation on self-similar analysis of the problem biological population kolmogorov-fisher type system. *ISJ Theoretical & Applied Science*, 11 (103), 319-322.

Soi: <http://s-o-i.org/1.1/TAS-11-103-20> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.20>

Scopus ASCC: 2600.

Introduction

We can consider a parabolic system of two quasilinear reaction-diffusion equations for a biological population problem of the Kolmogorov-Fisher type in the following domain

$$Q = \{(t, x) : 0 < t < \infty, x \in \mathbb{R}^2\}$$
$$\begin{cases} \frac{\partial u_1}{\partial t} = \frac{\partial}{\partial x} \left(D_1 u_1^{\sigma_1} \frac{\partial u_1}{\partial x} \right) + k_1(t) u_1 \cdot (-u_2^{\beta_1}) \\ \frac{\partial u_2}{\partial t} = \frac{\partial}{\partial x} \left(D_2 u_2^{\sigma_2} \frac{\partial u_2}{\partial x} \right) - k_2(t) u_2 \cdot (-u_1^{\beta_2}) \end{cases} \quad (1)$$

$$\begin{aligned} u_1|_{t=0} &= u_{10}(x) \\ u_2|_{t=0} &= u_{20}(x) \end{aligned} \quad (2)$$

It describes the process of a biological population in a nonlinear two-component medium,

the diffusion coefficient of which is equal to $D_1 u_1^{\sigma_1}$ and $D_2 u_2^{\sigma_2}$, $\sigma_1, \sigma_2, \beta_1, \beta_2$ - positive real numbers, $u_1 = u_1(t, x) \geq 0$, $u_2 = u_2(t, x) \geq 0$ - sought solutions.

The Cauchy problem and boundary value problems for system (1) in the one-dimensional and multidimensional cases have been studied by many authors.[1]

The purpose of this work is to study the qualitative properties of the solution to problem (1), (2) based on self-similar analysis and its numerical solutions using the methods of modern computer technologies. Also the article has a purpose to study the methods of linearization to the convergence of the iterative process with further visualization. The main estimations of the solutions and the resulting free boundary have been found, which makes it possible

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

to choose appropriate initial approximations [...] Each of them has their own counting systems.

Now we will start constructing a self-similar system of equations for (1) - (2). It is a simpler system of equations for research.

We construct a self-similar system of equations by the method of nonlinear splitting.

Instead of (1)

$$u_1(t, x) = e^{k_1 t} v_1(t, x),$$

$$u_2(t, x) = e^{k_2 t} v_2(t, x)$$

This will lead (1) to the form:

$$\begin{cases} \frac{\partial v_1}{\partial \tau} = \frac{\partial}{\partial x} \left(D_1 v_1^{\sigma_1} \frac{\partial v_1}{\partial x} \right) + k_1 e^{((\beta_1+1)k_1 - (\delta_1+1)k_2)t} v_1 v_2^{\beta_1}, \\ \frac{\partial v_2}{\partial \tau} = \frac{\partial}{\partial x} \left(D_2 v_2^{\sigma_2} \frac{\partial v_2}{\partial x} \right) + k_2(t) e^{((\beta_2+1)k_2 - (\delta_2+1)k_1)t} v_1^{\beta_2} v_2, \end{cases} \quad (3)$$

$$v_1|_{t=0} = v_{10}(x), \quad v_2|_{t=0} = v_{20}(x),$$

After choosing $\sigma_1 k_1 = \sigma_2 k_2$, we can achieve the following forms of equation systems.

$$\begin{cases} \frac{\partial v_1}{\partial \tau} = \frac{\partial}{\partial x} \left(D_1 v_1^{\sigma_1} \frac{\partial v_1}{\partial x} \right) - a_1 \tau^{b_1} v_1 v_2^{\beta_1}, \\ \frac{\partial v_2}{\partial \tau} = \frac{\partial}{\partial x} \left(D_2 v_2^{\sigma_2} \frac{\partial v_2}{\partial x} \right) - a_2 \tau^{b_2} v_1^{\beta_2} v_2, \end{cases} \quad (4)$$

Where $a_1 = (\delta_1 k_1)^{b_1}$, $a_2 = (\delta_2 k_2)^{b_2}$

$$b_1 = [(\beta_1+1)k_1 - (\sigma_1+1)k_2] / \sigma_1 k_1, \quad b_2 = (\beta_2+1)k_2 - (\sigma_2+1)k_1 / \sigma_2 k_2$$

In the following, we can write one of the ways of auto-model systems for equation systems (4). It is done like in the following:

$$\begin{cases} \frac{d\bar{v}_1}{d\tau} = -a_1 \tau^{b_1} v_1 v_2^{\beta_1}, \\ \frac{d\bar{v}_2}{d\tau} = -a_2 \tau^{b_2} v_1^{\beta_2} v_2, \end{cases}$$

It has a solution in the following:

$$\bar{v}_1(t) = c_1(\tau + T)^{\gamma_1}, \quad \bar{v}_2(t) = c_2(\tau + T)^{\gamma_2}, \quad T > 0$$

And then systems of solution are sought in the following steps. (3)-(4)

$$v_1(t, x) = \bar{v}_1(t) w_1(\tau, x),$$

$$v_2(t, x) = \bar{v}_2(t) w_2(\tau, x),$$

here $\tau = \tau(t)$ is chosen in the following way:

$$\tau(t) = \int \bar{v}_1^{-\sigma_1}(t) dt = \frac{1}{\gamma_1 \sigma_1 + 1} (T + t)^{\sigma_1 \gamma_1 + 1}, \quad \gamma_1 \sigma_1 + 1 \neq 0$$

$$u \tau(t) = \ln(T + t), \quad \gamma_1 \sigma_1 + 1 = 0$$

Here we can choose equation system for $w_i(\tau, x)$, $i = 1, 2$

$$\begin{cases} \frac{\partial w_1}{\partial \tau} = \frac{\partial}{\partial x} \left(D_1 w_1^{\sigma_1} \frac{\partial w_1}{\partial x} \right) - \theta_1 (w_1 w_2^{\beta_1} - w_1) \\ \frac{\partial w_2}{\partial \tau} = \frac{\partial}{\partial x} \left(D_2 w_2^{\sigma_2} \frac{\partial w_2}{\partial x} \right) + \theta_2 (w_2 w_1^{\beta_1} - w_2) \end{cases},$$

$$\eta_1 = b_1 + 1 + \beta_1 (b_2 + 1) \neq 0$$

$$\eta_2 = -\beta_2 (b_1 + 1) + (b_2 + 1) \neq 0$$

It is as $\gamma_1 \sigma_1 > 0$, $\gamma_1 \sigma_1 = \gamma_2 \sigma_2$, $d_i > 0$. In this case we can rely on the $w_i(\tau(t), x) = y_i(\xi)$, $\xi = |x| / \tau_1^{1/2}$, $i = 1, 2$,

$$\begin{cases} \xi^{1-N} \frac{d}{d\xi} \left(\xi^{N-1} y_1^{\sigma_1} \frac{dy_1}{d\xi} \right) + \frac{\xi}{2\theta_1} \frac{dy_1}{d\xi} - \mu_1 (y_1 - y_1 y_2^{\beta_1}) = 0 \\ \xi^{1-N} \frac{d}{d\xi} \left(\xi^{N-1} y_2^{\sigma_2} \frac{dy_2}{d\xi} \right) + \frac{\xi}{2\theta_2} \frac{dy_2}{d\xi} + \mu_2 (y_2 - y_2 y_1^{\beta_2}) = 0 \end{cases} \quad (5)$$

Here $\mu_i = \frac{1}{\theta_i \sigma_i}$, $\theta_i = \begin{cases} 1, \\ \gamma_1^{-\sigma_1} \gamma_2^{\sigma_2}, \end{cases}$

The study of the qualitative properties of the system (1) - (2) made it possible to perform a numerical experiment depending on the values

We can choose the following equation system considering the fact that equation for $w_i(\tau, x)$ without little members is always auto-model.

included in the system of numerical parameters. For this purpose, the constructed asymptotic solutions were used as an initial approximation. In the numerical solution of the problem for the linearization of system (1) - (2), linearizations by the Newton and Picard methods were used. The method

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

of nonlinear splitting is proposed to solve the problem of a biological population.

$$\omega_h = \{x_i = ih, h > 0, i = 0, 1, \dots, n, hn = l\},$$

Temporary grid

$$\omega_{h_1} = \{t_j = jh_1, h_1 > 0, j = 0, 1, \dots, n, \tau m = T\}.$$

The main problem in nonlinear problems is the appropriate choice of the initial approximation and the way to linearize equation (3).

We replace problem (3) - (4) with an implicit difference scheme and obtain a difference problem with an error $O(h^2 + h_1)$.

$$\psi_1(t) = \bar{v}_1(t), \quad v_{10}(t, x) = \psi_1(t) \cdot \left(a - \frac{\sigma_1}{4} \xi^2\right)_+^{1/\sigma_1},$$

$$\psi_2(t) = \bar{v}_2(t), \quad v_{20}(t, x) = \psi_2(t) \cdot \left(a - \frac{\sigma_2}{4} \xi^2\right)_+^{1/\sigma_2},$$

$$\xi = \frac{x}{[\tau(t)]^{1/2}}, \quad \tau(t) = \int_0^t [\psi(y)] dy$$

$$(a)_+ \text{ means } (a)_+ = \max(0, a).$$

As a conclusion, the results of numerical experiments have shown the effectiveness of the proposed approach. Asymptotes of various solutions of the system of type (1) - (2) made it possible to simulate the processes of mutual reaction-diffusion in the form of visualization with animation.

All in all, we can emphasize the importance of a joint study of migration and demographic processes. To analyze the population dynamics of interacting populations, it is important to jointly study the processes of fertility, mortality, trophic interactions, and various migrations. The introduction of nonlinearity into migration flows is the first step towards an adequate description of spatio-temporal population dynamics.

References:

1. Martynenko, A.V., & Tedeev, A.F. (2007). The Cauchy problem for a quasilinear parabolic equation with a source and no homogeneous density. *Comput. Math. Math. Phys.* 47, no. 2, pp. 238–248.
2. Aripov, M., & Sadullaeva, Sh. (2013). To properties of the equation of reaction diffusion with double nonlinearity and distributed parameters. *Journal of Siberian Federal University. Mathematics & Physics*, Vol. 6, Issue 2, pp. 157–167.
3. Sadullaeva, Sh. (2016). Numerical Investigation of Solutions to a Reaction-diffusion System with Variable Density. *Journal of Siberian Federal University. Mathematics & Physics*, 9(1), pp. 90-101.
4. Sadullaeva, S.A., Khaydarov, A.T., & Kabilianova, F.A. (2019). *Modeling of Multidimensional Problems in Nonlinear Heat Conductivity in Non-Divergence Case*, 3rd International Symposium on Multidisciplinary Studies and Innovative Technologies, ISMSIT 2019 – Proceedings, 8932954.
5. Sadullaeva, S.A., & Khojimurodova, M.B. (2018). Properties of solutions of the cauchy problem for degenerate nonlinear cross systems with convective transfer and absorption, *Springer Proceedings in Mathematics and Statistics*, 264, pp. 183-190.
6. Aripov, M., & Sadullaeva, S. (2015). An asymptotic analysis of a self-similar solution for the double nonlinear reaction-diffusion system, *J. Nanosyst. Phys. Chem. Math.*, 6 (6), pp. 793-802.
7. Aripov, M., & Sadullaeva, S. (2015). Qualitative properties of solutions of a doubly nonlinear reaction-diffusion system with a source. *J. Appl. Math. Phys.*, 3, pp. 1090-1099.
8. Muhamediyeva, D.K. (2019). The property of the problem of reaction diffusion with double nonlinearity at the given initial conditions. *International Journal of Mechanical and Production Engineering Research and Development*, Volume 9, Issue 3, IJMPERDJUN2019117, Pages 1095-1106.
9. Mersaid, A. (2018). The fujita and secondary type critical exponents in nonlinear parabolic equations and systems. *Springer Proceedings in Mathematics and Statistics*, 268, pp. 9-23.
10. Muhamediyeva, D.K. (2018). Properties of self similar solutions of reaction-diffusion systems of quasilinear equations. *International Journal of Mechanical and Production Engineering Research and Development*, 8 (2), pp. 555-566.
11. Sadullaeva, S.A., & Pardaeva, G. (2018). Numerical Investigation one System Reaction-Diffusion with Double Nonlinearity. *Journal of Mathematics, Mechanics and Computer Science*, 86 (3), 58-62.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHIQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

12. Aripov, M., Djabbarov, O., & Sadullaeva, Sh. (2021). *Mathematic modeling of processes describing by double nonlinear parabolic equation with convective transfer and damping*. AIP Conference Proceedings 2365, 060008 (2021); <https://doi.org/10.1063/5.0057492>
13. Aripov, M., Sadullaeva, S., & Iskhakova, N. (2020). *Numerical Modeling Wave Type Structures in Nonlinear Diffusion Medium with Dumping*. 4th International Symposium on Multidisciplinary Studies and Innovative Technologies, ISMSIT 2020 - Proceedings this link is disabled, 2020, 9254988
14. Sadullaeva, S., Fayzullaeva, Z., & Nazirova, D. (2020). *Numerical Analysis of Doubly Nonlinear Reaction-Diffusion System with Distributed Parameters*. 4th International Symposium on Multidisciplinary Studies and Innovative Technologies, ISMSIT 2020 - Proceedings this link is disabled, 2020, 9255106.
15. Nematov, A., Nazirova, E.S., & Sadikov, R.T. (2021). On numerical method for modeling oil filtration problems in piecewise-inhomogeneous porous medium, IOP Conference Series: *Materials Science and Engineering* this link is disabled, 1032(1), 012018
16. Nazirova, E., Nematov, A., Sadikov, R., & Nabiyeu, I. (2021). *One-Dimensional Mathematical Model and a Numerical Solution Accounting Sedimentation of Clay Particles in Process of Oil Filtering in Porous Medium*. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) this link is disabled, 2021, 12615 LNCS, pp. 353–360.
17. Ravshanov, N., Nazirova, E.S., & Pitolin, V.M. (2019). Numerical modelling of the liquid filtering process in a porous environment including the mobile boundary of the oil-water section. *Journal of Physics: Conference Series* this link is disabled, 1399(2), 022021.
18. Anarova, S., & Ismoilov, S. (2021). *Nonlinear mathematical model of stress-deformed state of spatially loaded rods with account for temperature*. AIP Conference Proceedings this link is disabled, 2021, 2365, 070019.
19. Anarova, S.A., Ismoilov, S.M., & Abdirozиков, O.S. (2021). *Software of Linear and Geometrically Non-linear Problems Solution Under Spatial Loading of Rods of Complex Configuration*, Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) this link is disabled, 2021, 12615 LNCS, pp. 380–389.

Impact Factor:

ISRA (India) = 6.317
 ISI (Dubai, UAE) = 1.582
 GIF (Australia) = 0.564
 JIF = 1.500

SIS (USA) = 0.912
 ПИИИ (Russia) = 3.939
 ESJI (KZ) = 9.035
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

SOI: [1.1/TAS](http://s-o-i.org/1.1/TAS) DOI: [10.15863/TAS](https://doi.org/10.15863/TAS)

International Scientific Journal
Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 08.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Marg'uba G'afurjonovna Yulchiyeva

Termez branch of the Tashkent State Technical University named after I. Karimov
 Lecturer
 732000, Republic of Uzbekistan, Termez, st. I. Karimov, 288a
margubayulchiyeva86@gmail.com

Sherzod Abduzairovich Kasimov

Termez State University
 Associate Professor of the Department of
 Inorganic and Analytical Chemistry (TerSU),
 190111, Republic of Uzbekistan, Termez, Barkamol Avlod str., 43.
sh_kasimov@rambler.ru

Hayit Khudainazarovich Turaev

Termez State University
 Doctor of Chemistry, Professor,
 Dean of the Faculty of Chemistry, TerSU

Mashhura Baxtiyor qizi Jovliyeva

Termez branch of the Tashkent State Technical University named after I. Karimov
 Student

SYNTHESIS AND STUDY OF THE SORBENT BY MODIFICATION OF CARBOMIDE-FORMALDEHYDE RESIN WITH 2,4 DIPHENYLHYDRAZINE

Abstract: The article studies the synthesis of a complex sorbent based on urea-formaldehyde resins modified with reagents containing nitrogen and oxygen. The exchange capacity of Zn (II), Ni (II), Cu (II) ions has been established for some d-metals of the sorbent forming a complex. Based on the results of IR spectroscopic and thermal studies, the structure of the obtained sorbent is proposed.

Key words: chelating sorbent, urea, formaldehyde, 2,4-diphenylhydrazine, IR spectroscopy, thermal characteristics, structure, static exchange capacity.

Language: Russian

Citation: Yulchiyeva, M. G., Kasimov, Sh. A., Turaev, H. Kh., & Jovliyeva, M. B. (2021). Synthesis and study of the sorbent by modification of carbomide-formaldehyde resin with 2,4 diphenylhydrazine. *ISJ Theoretical & Applied Science*, 11 (103), 323-327.

Soi: <http://s-o-i.org/1.1/TAS-11-103-21> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.21>

Scopus ASCC: 1604.

СИНТЕЗ И ИССЛЕДОВАНИЯ СОРБЕНТА МОДИФИЦИРОВАНИЕМ КАРБОМИДОФОРМАЛЬДЕГИДНОЙ СМОЛЫ С 2,4 ДИФЕНИЛГИДРАЗИНОМ

Аннотация: В статье изучен синтез сложного сорбента на основе карбамидоформальдегидных смол, модифицированных реагентами, содержащими азот и кислород. По некоторым d-металлам сорбента, образующим комплекс, установлена обменная емкость ионов Zn (II), Ni (II), Cu (II). На основе результатов ИК спектроскопических и термических исследований предложена структура полученного сорбента

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Ключевые слова: хелатообразующий сорбент, карбамид, формальдегид, 2,4-динитрофенилгидразин, ИК спектроскопия, термические характеристики, структура, статическая обменная емкость.

Введение

Синтез полимерных лигандов, а именно хелатообразующих сорбентов, разделение с их помощью переходных металлов из растворов комплексообразующими сорбционными методами, изучение состава, строения, физико-химических свойств координационных соединений, образующихся в процессе сорбции, является одной из основных задач химической промышленности [1].

Изучены физико-химические и сорбционные свойства модифицированных ионитов [2]. Также получен сорбент на основе формальдегида, тиомочевины и комплексного соединения цинка (II) O, O-ди-(2-аминоэтил)-дитиофосфатом [3], синтезирован и изучены сорбционные свойства серосодержащего хелатирующего сорбента на основе карбамида, формальдегида и гидразина гидрата [4], а также 3-нитро-4-сульфоаминобензола [5]. Комплексы металлов получали взаимодействием хлорида Cu (II) с натриевой солью статистических сополимеров 2-акриламидо-2-метилпропансульфоновой кислоты [6]. Было доказано, что вновь синтезированные тройные сополимеры являются селективными хелатирующими ионообменниками для ионов металлов, таких как Fe^{3+} , Cu^{2+} , Ni^{2+} , Co^{2+} , Zn^{2+} , Cd^{2+} , Hg^{2+} и Pb^{2+} . [7], полимерная матрица должна реагировать с 3- (пиридин-2'-ил) -1,2,4-триазин-5 (2H)-ОН [8], сорбционного, модифицированного хелатного сорбента по отношению к ионам меди, цинка и кадмия [9], мезопористые сорбенты с нанесенными слоями хелатных комплексов [10] кобальта (II), никеля (II) полисилоксаном, содержащим 2-аминоэтилпиридиновые функциональные группы (ПЭАППС), [11]. Также синтезированы хелатообразующие сорбенты на основе ковалентного закрепления [12], дитизона [13], ортофосфорной кислоты [14]. В статье [15] исследован полученный лиганд, ковалентно закрепленным способом [16].

Таким образом, целью исследования является синтез и исследование ионита, полученного поликонденсацией на основе

карбамида, формальдегида и 2,4-динитрофенилгидразина и изучение его сорбционного свойства.

Экспериментальная часть.

Объектом исследования является полученный сорбент на основе карбамида, формальдегида, 2,4-динитрофенилгидразина (КФ2,4ДНФГ) и изучение его сорбционных свойств. Определяли статическую обменную ёмкость сорбента по меди – ГОСТ 20255.1–89. ИК-спектроскопические исследования проводили на инфракрасном ИК-Фурье спектрометре IRTracer-100 SHIMADZU (Япония) (диапазон 400-4000 cm^{-1} , разрешение 4 cm^{-1}), порошкообразным методом. Количество образца на одно измерение 5-10 мг. Измерительная система калибровалась стандартным набором веществ KNO_3 , In, Bi, Sn, Zn.

ИК спектроскопические и термоаналитические исследования проводили в анализаторах в Ташкентском научно-исследовательском институте химической технологии.

Синтез сорбента КФ2,4ДНФГ. Для синтеза сложного сорбента, содержащего азот и кислород, 12 г (0,2 моль) мочевины добавляли в колбу с тремя соплами, снабженную обратным охладителем и автоматической мешалкой, и добавляли 35,5 мл (0,5 моль) формалина и растворяли при 40 °С. Затем по каплям добавляли спиртовой раствор 3,96 г (0,02 моль) 2,4-динитрофенилгидразина (2,4ДНФГ) и реакционную смесь интенсивно перемешивали при нагревании до 90–100 °С. В результате было получено твердое пористое соединение темно-желтого цвета [17].

По данным анализа дифференциальной сканирующей калориметрии, анализа различных экзотермических и эндотермических эффектов, наблюдается изменение массы из-за нарушения химической структуры соединений при нагревании сорбента.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

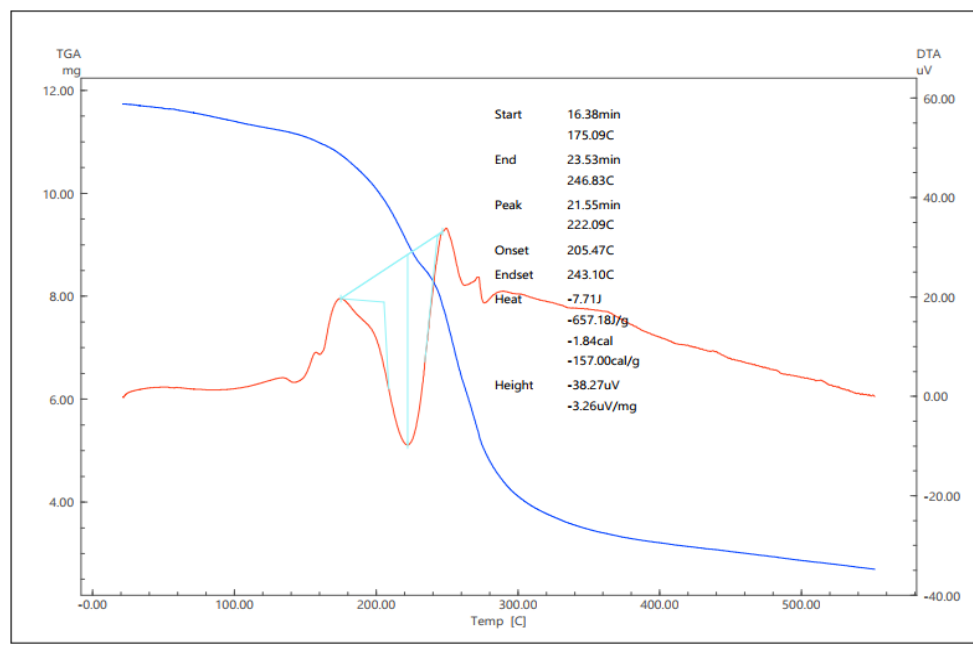


Рисунок 1. ДСК-ТГ-ДТГ график сорбента.

Изучение графиков DSK-TG-DTG сорбента (рис.1.) показывает четыре эндотермических пика в диапазоне температур 175–246,8 °С. На первом показано плавление сорбента при температуре 170 °С. Разложение началось при 205,47°С. В интервале температур 205–243,1 °С уменьшение массы образца составило 66,5%. Этому процессу соответствуют два эндотермических пика. Полная энтальпия распада составляет $\Delta Q = -657,18$ Дж/г.

Наблюдали абсорбцию сорбента от модификации карбамидоформальдегидной смолы 2,4-дифенилгидразином в растворе хлорида цинка (II).

Хлорид цинка (II) добавляли к 10 мл 0,05 н. раствора с 0,02 г сорбата на 24 часа. Строение

координационного соединения сорбента с ионами спирта (II) определено ИК-спектральным методом.

С целью установления структуры полученного сорбента была использована ИК спектроскопия. ИК спектры полученного соединения содержат полосы в области 3329 см^{-1} , соответствующие валентным колебаниям первичных амидогрупп. Появление полос в области 3050 см^{-1} свидетельствует о связанной группе NH, а в области 1539 см^{-1} мы наблюдаются R–NO₂-группы. При этом связанные с циклической структурой вторичные аминогруппы появляются в области 1349 см^{-1} , что свидетельствует о наличие группы C=O

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

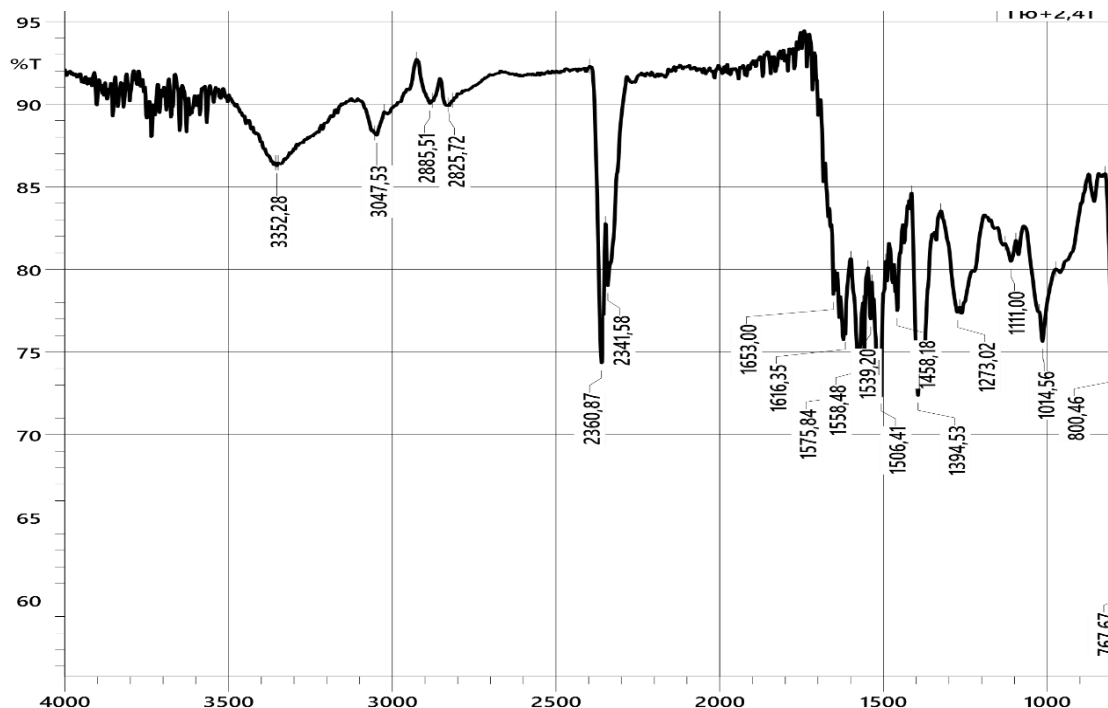
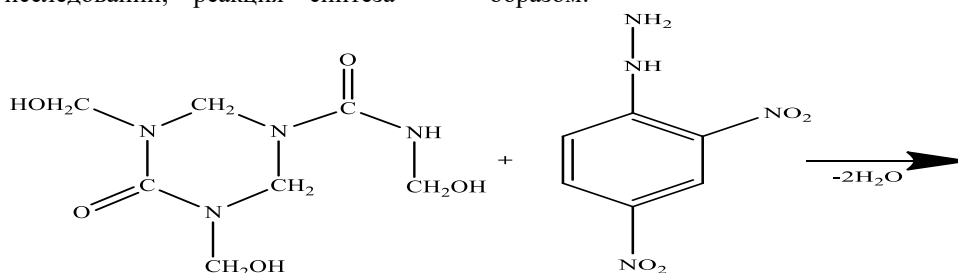


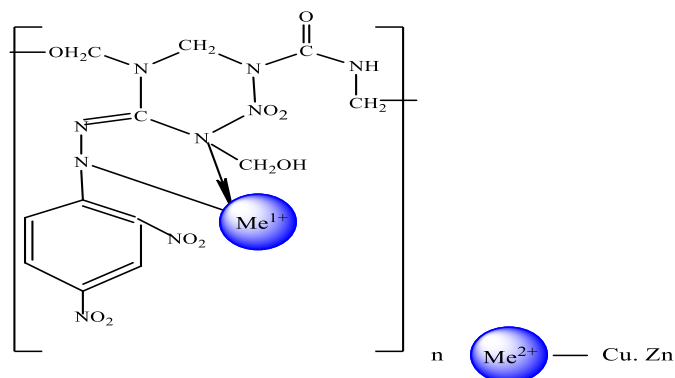
Рисунок 2. ИК-спектр координационного соединения 2,4-динитрофенилгидразина с полученной смолой с ионом цинка (II).

Согласно полученным результатам выполненных исследований, реакция синтеза

сорбента может быть представлена следующим образом:



Выводы. На основе реакции поликонденсации мочевины, формальдегида и 2,4-динитрофенилгидразина



был синтезирован хелатирующий сорбент, изучены термические свойства, структура, статическая обменная емкость, проанализирована абсорбционная ИК-спектроскопия в d-металлах.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

References:

1. Kasimov, Sh. A., Turayev, Kh. X., & Dzhililov, A. T. (2018). Issledovaniye protsessa kompleksobrazovaniya ionov nekotorykh dvukhvalentnykh 3d-metallov, sintezirovannykh kselatoobrazuyushchim sorbentom. *Universum: khimiya i biologiya*, 3 (45).
2. Lyapunova, G. N., Pervova, I. G., & Lyapunov, I. N. (1997). Sintez i kompleksobrazuyushchiye svoystva polimernykh formazanov. *Vysokomolekulyarnyye soyedineniya. Seriya B*, T. 39, №. 9, pp.1523-1526.
3. Suyunov, Ya. R., Turayev, Kh. Kh., Kasimov, Sh. A., & Dzhililov, A. T. (2021). Polucheniyе sorbentov na osnove dietanolamina. *Universum: khimiya i biologiya*, 7-1 (85), 64-68.
4. Turayev, X.X., Kasimov, Sh.A., Choriyeva, N.B., & Yul'chiyeva, M.G. (2019). *Issledovaniye kompleksobrazovaniya ionov nekotoryx 3d-metallov kselatoobrazuyushchim sorbentom*. Programma XXI Mendeleyevskogo s"yezda po obshchey i prikladnoy khimii. (p.321). Sankt-Peterburg.
5. Abilova, U. M., Gashimova, E. N., & Chyragov, F. M. (2020). Kontsentratsiya i issledovaniya palladii (ii) sorbentoma, sodержashchim fragmentami 3-nitro-4-sul'foaminobenzola. *Sovremennaya nauka*, (8-2), 25-31.
6. San Migel', V., Katalina, F., & Peynado, K. (2008). Samosborka fizicheski sshitykh mitsell kompleksov poli (2-akrilamido-2-metil-1-propansul'fonovaya kislota-soizodetsilmetakrilat) -medi (II). *Yevropeyskiy zhurnal polimerov*, 44 (5), 1368-1377.
7. Kalbende, P. P., & Zade, A. B. (2015). Sorption Studies of Terpolymers Based on p-Nitrophenol, Triethylenetetramine, and Formaldehyde. *Separation Science and Technology*, 50(7), 965-974.
8. Pestov, A. V., Slepukhin, P. A., Yatluk, Y. G., Charushin, V. N., & Chupakhin, O. N. (2012). Synthesis of chelating polymer sorbents by using the S methodology. *Journal of applied polymer science*, 125(3), 1970-1978.
9. Zeynalov, R. Z., Tatayeva, S. D., & Atayeva, N. I. (2013). Kontsentrirvaniye i opredeleniye medi, tsinka i kadmiya khelatoobrazuyushchim modifitsirovannym sorbentom. *Analitika i kontrol'*, № 1, T. 1, pp. 89-96.
10. Faustova, Zh. V., Slizhov, Yu. G., & Gavrilenko, M. A. (2016). Khromatograficheskiye issledovaniya sorbentov, modifitsirovannykh atsetilatsetonatami i benzoilatsetonatami RZE. *Vestnik Tomskogo gosudarstvennogo universiteta. Khimiya*, №. 2 (4).
11. Neudachina, L. K., Petrova, Ju. S., Zasuhin, A.S., Osipova, V.A., Gorbunova, E.M., & Larina, T. Ju. (2011). Kinetika sorbcii ionov tjazhelyh metallov piridiljetilirovannym aminopropilpolisiloksanom. *Analitika i kontrol'*, 15(1), 87-95.
12. Faustova, Zh. V., Slizhov, Yu. G., & Gavrilenko, M. A. (2016). Khromatograficheskiye issledovaniya sorbentov, modifitsirovannykh atsetilatsetonatami i benzoilatsetonatami RZE. *Vestnik Tomskogo gosudarstvennogo universiteta. Khimiya*, №. 2 (4).
13. Yermuratova, N. A., Kasimov, Sh. A., Turayev, X. X. (2021). Sintez i issledovaniye kselatoobrazuyushchego sorbenta na osnove karbama, formal'noy i 2-aminopentandiovoy kislot. *Universum: tekhnicheskkiye nauki*, 4-4 (85), 71-73.
14. Nigora, K., et al. (2021). Sintez i issledovaniya khelatoobrazovaniya sorbenta na osnove karbamida, formal'degida, ditizona. *Khimiya i khimiya*, 2020 (4), 4.
15. Kasimov, Sh. A., Turayev, Kh. Kh., Dzhililov, A. T., Choriyeva, N. B., & Amonova, N. D. (2019). IK-spektroskopicheskiye issledovaniya i kvantovo-khimicheskkiye kharakteristiki azot- i fosforsoderzhashchego polimernogo liganda. *Universum: khimiya i biologiya*, 6 (60).
16. Kasimov, Sh.A., Turayev, Kh.Kh., Dzhililov, A.T., Alikulov, R.V., & Mukumova, G.Zh. (2021). IK-spektroskopicheskiye i termicheskiye kharakteristiki kovalentnogo immobilizovannogo serosoderzhashchego liganda i yego koordinatsionnykh soyedineniy s med'yu (II). *ISJ Teoreticheskaya i prikladnaya nauka*, I.09 (101), pp.234-238. <https://dx.doi.org/10.15863/TAS>
17. Yul'chiyeva, M.G., Kasimov, Sh. A., & Turayev, X. X. (2021). Sintez i issledovaniye kselatoobrazuyushchego sorbenta na osnove karbama, formal'degida i 2,4-dinitrofenilgidrazina. *Universum: tekhnicheskkiye nauki*, 11 (89), <https://7universum.com/ru/nature/archive/item/12481>

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 08.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sarbinaz Turdi'muratovna Utegenova

Karakalpak State University named after Berdakh

PhD, assistant professor of Accounting and Audit Department

high.utegenova2015@yandex.ru

AUDIT QUALITY CONTROL IN UZBEKISTAN AND ALL OVER THE WORLD

Abstract: The article analyzes the method of quality control for audit services. The role of external and internal control of audit quality is revealed as well as the stages in its organization and performance. Special attention is dedicated to the description of key directions in the external and internal test of audit quality.

Key words: audit, control, standard, quality, test.

Language: English

Citation: Utegenova, S. T. (2021). Audit quality control in Uzbekistan and all over the world. *ISJ Theoretical & Applied Science*, 11 (103), 328-332.

Soi: <http://s-o-i.org/1.1/TAS-11-103-22> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.22>

Scopus ASCC: 2000.

Introduction

In the context of globalization of the world economy, audit quality control is organized on the basis of international standards. Audits in the Republic of Korea, Latvia, Singapore, Brazil are organized on the basis of full international auditing standards, auditing activities in the Russian Federation, China and Japan are based on national and international auditing standards.[1]. A definition issued by the American Chamber of Accounts states that a quality audit is an audit that is conducted in accordance with generally accepted auditing standards and guarantees the reliability of the financial statements[2]. Therefore, conducting audits in accordance with the requirements of international standards serves to improve the quality of audit work.

As a result of research conducted in the world practice, special attention is paid to improving the quality control of audit work by the relevant competent authorities and public organizations. In the current world audit practice, inspections are not fully organized on the basis of international standards, audits do not comprehensively study the issues of quality of work requires in-depth research in this area. It is also necessary to establish effective mechanisms for the organization of external control over the quality of audit work, to ensure functional coherence and consistency between the various oversight bodies

in the system, to establish support for the effective operation of the principles of priority and subordination between audit organizations and professional public associations. Improving the application of standards is a pressing issue.

In recent years, Uzbekistan has been carrying out intensive reforms to increase the prestige of auditing and expand the membership of audit organizations in international networks. However, there are still shortcomings in the development of auditing in our country. In particular, "there is no effective system of external quality control of audit organizations, which does not allow the licensing authority to take prompt action against cases of poor quality audit services and dishonest actions of auditors"; the existence of such problems as [3] creates certain difficulties in the activities of audit organizations in accordance with international requirements. The existence of legal, methodological and practical problems in the implementation of quality control of audit organizations and auditors in our country requires research on this topic.

Current issues of audit quality development should be addressed on the basis of the main elements of the regulation of audit activities and the theoretical and methodological basis for ensuring the quality of audit services, audit standards that reflect the level of organization of audit activities.

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

To ensure the quality of audit services, it is necessary to develop methodological recommendations that increase efficiency in the organization and regulation of audit activities. These guidelines should be established in every audit firm. The objective needs to improve the quality of auditing in Uzbekistan is explained not only in theory, but also in its practical direction. In addition to the development of theoretical, methodological and organizational guidelines for improving the quality of audits, we need to develop practical recommendations and conclusions, as well as contribute to the reform and implementation of auditing in the Republic of Uzbekistan. Using scientific data on what quality is, the quality of work of audit organizations, the quality of audits and the quality of audit work from domestic and foreign economic literature, we have reflected a personal approach to this issue.

The concept of quality plays an important role in auditing. Numerous studies have been conducted on quality issues, as well as requirements set by international standards for quality assurance and control. There are various approaches to ensuring

quality control in auditing, all of which put forward specific approaches to addressing quality assurance issues.

Insufficient research on audit quality control has not been conducted in the Republic of Uzbekistan. Audit quality control is reflected in the Law of the Republic of Uzbekistan “On auditing” №677, adopted on February 25, 2021 . However, technical, organizational and methodological issues of quality control have not yet been resolved. There is no specific regulation on the quality control of audit work. In addition, the extent to which international auditing standards and internal standards of audit organizations should be used to ensure quality control remains unclear.

Before assessing the quality control of audit work in the Republic of Uzbekistan, it is expedient to know on the key indicators of the audit services market.

Figure 1.1 shows the number of audit organizations and certified auditors in the Republic of Uzbekistan for 2007-2019 .

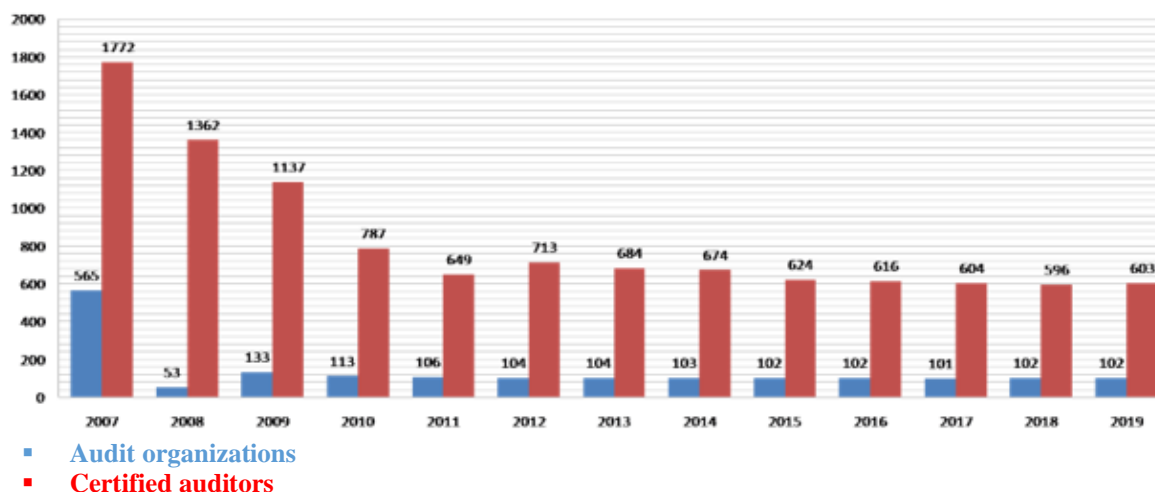


Figure 1. Number of audit organizations and certified auditors in the Republic of Uzbekistan for 2007-2019 [4]

Compared to 2015, the number of auditors decreased by 20 people in 2018, while the number of audit organizations recorded the same figure. More than half of all audit organizations and auditors operate in the capital, Tashkent, and currently 1 to 7 organizations and 6 to 57 auditors are registered in the regions.

We can note that since 2015, the volume of audit services provided increased from 47108.1 million

soums to 65701.5 million soums. In the last two years, inspections were conducted in 20,794 business entities, more than 95% of which were positive. [5]

Along with the activities of audit organizations, it is important to assess the level of qualification of auditors. The following figure shows the status of auditors operating in the country with certificates of competency (Figure 2).

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

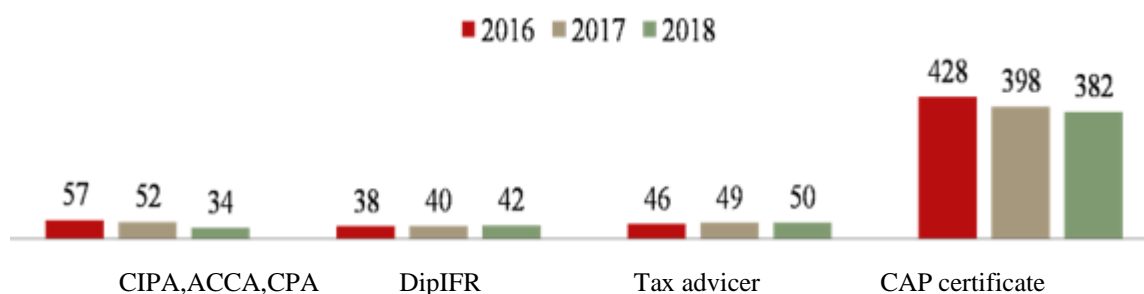


Figure 1.2. Status of certificates related to auditing in the Republic of Uzbekistan.[6]

As of January 1, 2018, 34 auditors had CIPA, ACCA, CPA certifications, and 42 auditors also had DipIFR and ACCA certifications. Compared to 2014, the number of audit organizations conducting audits in accordance with international standards increased from 10 to 52, and the number of audits increased from 62 to 357.

Nearly a decade ago, in our country, much attention was paid only to certificates obtained under the CIPAEN program. However, later new types of international certification programs began to enter our country. In particular, the demand for the ACCA program is growing today. Under this program, applicants pass the following levels:

- F1-F8 - fundamental sciences;
- P1-P7 - professional sciences.

However, the composition of these disciplines by ASSA is constantly changing.

The SRA is a U.S. accountant certification program that is widely used, primarily in the United States and neighboring countries.

Recently, the demand for certificates under the DipIFR program in our country is growing. This program is an acceptable option for Russian-speaking applicants for the ASSA program.

In assessing the audit services in the Republic of Uzbekistan, it is necessary to pay attention to the situation in Karakalpakstan, which is an administrative component of it. It is necessary to increase the number of audit organizations and the number of certified auditors in the Republic of Karakalpakstan. As far as we know, there are only 2 audit firms in the Republic of Karakalpakstan, which cannot inspect all enterprises in the Republic of Karakalpakstan that are subject to mandatory audits almost simultaneously and provide them with the

necessary audit opinions. Therefore, first of all, it is necessary to increase the number of auditors and audit organizations in the Republic of Karakalpakstan. To this end, it would be expedient for us to conduct training courses for auditors to obtain external and internal audit qualification certificates in the Republic of Karakalpakstan at regional universities and to issue these certificates issued by the Ministry of Finance in the same region. We all know that most of the large enterprises in the country, which undergo a mandatory audit, apply to audit organizations in the center of the country. This leads to overspending by businesses. First, we will avoid overspending, and second, we will increase competition among audit firms so that businesses can benefit both financially and qualitatively.

The quality of the audit includes the quality of the work of the audit organization and the quality of the auditor's work. The quality of the audit organization and the auditor's work is directly related to the audit, which is reflected in the following figure (Figure 3).

As can be seen from Figure 1.3, the quality of the audit is influenced by the audit organization, the audit and the auditor. Here, first of all, it is necessary to dwell on the essence of the quality category.

Quality is a philosophical category that represents the important accuracy of an object. Throughout the history of philosophical thought, the content of the quality category has changed many times.

One of the first philosophers to interpret the category of quality was Aristotle. Aristotle stated in his *Metaphysics*: "The quality of everything depends on its essence." [7]

Impact Factor:

ISRA (India)	= 6.317	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 1.582	ПИИИ (Russia)	= 3.939	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 9.035	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

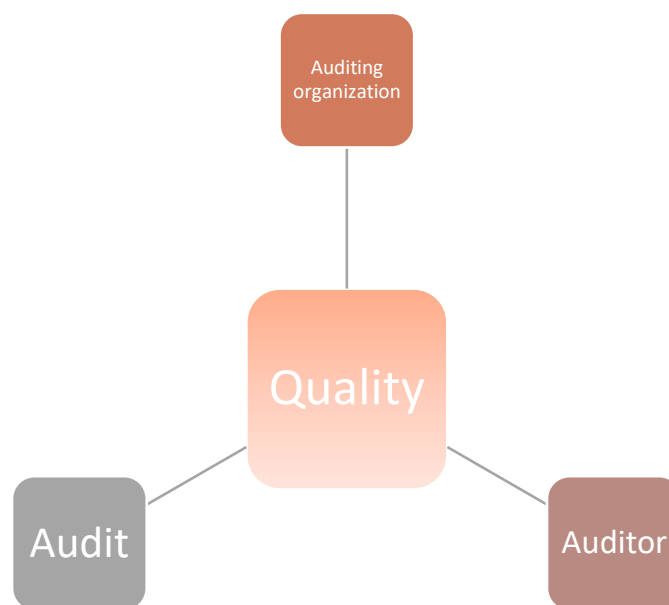


Figure 3. The relationship between the audit organization and the quality of the auditor's work[8]

Dr.J. Locke Commenting on quality said: “The power that awakens an idea in our minds. For example, a snowball is capable of creating white, cold, and round ideas in us. So we have the forces that give rise to these ideas, and because they are in a snowball, I call them features.”[9].

According to Gegel, "quality shows that whatever is with its quality, if it loses its quality, it ceases to be something"[10].

We can apply the philosophical ideas of Aristotle, J. Locke and Hegel mentioned above in the field of auditing. Therefore, the quality of audit activities depends on the quality of audit services and the audit of financial statements by auditors. In addition, the quality of auditing depends on who is interested in it.

R. Hoyer, B. Hoyer's "What is Quality?" in the article[11] presents the views of the top eight experts in the field of quality: F. Crosby (1979), E. Deming (1988), A. V. Feygenbaum (1983), K. Isikav (1985), Dj. Djuran (1988), R. M. Piercing (1974), U. A. Schuxart (1931), G. Taguti (1979). According to the authors of the article, despite the many similarities in the concept of quality, the greatest experts in the field of quality have not yet introduced a single concept of "quality".

F. According to Crosby, “quality is about meeting the requirements. This also applies to business. The requirements must be clearly defined, otherwise we will not be able to understand each other. After that, measurements should be taken on a regular basis to determine if compliance is indeed ensured. The basic rules of quality definition are as follows: quality marks must be clear (installed),

otherwise it is impossible to know how to manage it, in other words, we need to know what the set requirements are and how to transfer them to the characteristics representing the product or service.

In connection with the audit, it is considered in accordance with the requirements of the concept of quality - the requirements of the regulations (audit standards, rules of professional ethics of auditors). Such an approach can lead to taking into account formal features.”[12].

E.. According to Deming, “quality is to be defined in terms of customer satisfaction. He says that quality is multidimensional and it is not possible to determine the quality of a product or service with only one feature or only one perspective.”[13].

In the field of auditing, the ideas expressed by the above scholars can be applied.

We A. V. We present Feigenbaum’s most important statements on quality assurance. Quality should be defined in terms of customer satisfaction. Quality is determined by the customer, not the engineer, marketer or manager. It is based on the consumer’s actual assessment of the product or service in relation to their requirements [14].

A.V. Freygenbaum is paying more attention to the consumer. This approach cannot be fully applied to an audit because it is a unique service whose purpose is defined by regulatory documents and therefore the auditor cannot be fully customer-oriented.

I.f.d., Professor A.Z.Avlokulov noted that once the legal framework for audit is created and the organizational framework of auditing is fully formed, the main focus should be on improving its quality.

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Quality indicators of audit services serve to increase the efficiency of the audit [15].

It is clear from the above considerations that while economists have tried to explain the essence of

the quality category, they have not fully elucidated the essence of the quality of the audit work.

References:

1. (n.d.). Retrieved from <https://www.ifac.org/knowledge-gateway/supporting-international-standards/discussion/international-standards>
2. (n.d.). Retrieved from <https://www.gao.gov/assets/110/101189.pdf>
3. (n.d.). *Resolution of the President of the Republic of Uzbekistan dated September 19, 2018 No PP-3946 "On measures to develop auditing in the Republic of Uzbekistan."* Retrieved from www.lex.uz
4. (n.d.). *Formed by the author on the basis of official data of the Ministry of Finance of the Republic of Uzbekistan.*
5. (n.d.). *Official data of the National Association of Accountants and Auditors of the Republic of Uzbekistan for 2017.*
6. (n.d.). *Official data of the National Association of Accountants and Auditors of the Republic of Uzbekistan for 2017.*
7. (n.d.). *Aristotle Metaphysics.* Translation with Greek P. D. Pervova and V. V. Rozanova. M. : Institut filosofii, teologii i istorii sv. (p.232). Fomy.
8. (n.d.). Developed by the author.
9. Lokk, Dj. (1985). *Opyt o chelovecheskom razumenii. Kniga chetvertaya.* Lokk Dj. Sochineniya c 3 x Thomas. T. 2. (p.183). Moscow: Mysl.
10. Gegel, G.V.F. (1974). *Encyclopedia of philosophical sciences.* (p.228). Moscow: t. 1.
11. Xoyer, R., & Xoyer, B. (2002). *What quality? Standards and quality*, № 3, pp. 97–102.
12. Crosby, Ph.D. (1979). *Quality is Free.* (p.7). New York: McGraw-Hill Book Co.
13. (1988). *Deming WE Out of the Crisis.* - Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study.
14. Feigenbaum, A. (1983). *Total Quality Control*, third edition. New York: McGraw-Hill Book Co.
15. Avlokulov, A.Z. (2015). *Issues of improving the quality of audit of financial results. Scientific electronic journal "Economy and Innovative Technologies"*, № 2, March-April, 2015.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 08.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sarvar Ismatov

National University of Uzbekistan

Candidate of Philology

French teacher

Department of French Philology

IDIOSTYLE - AUTHOR'S OCCASIONAL SPECIFICITIES

Abstract: The article presents theoretical views on the study of the author's idiosyle, which is one of the problematic issues in the field of poetic syntax. Within the framework of the Uzbek poetic syntax, the importance of studying the author's idiosyle as a separate category in the study of Uzbek poetic speech based on the experience of world linguistics is emphasized.

Key words: linguopoetics, linguistic stylistics, rhetoric, poetic syntax, poetic speech, idiosyle, idiolect, expressiveness, communication, extralinguistics.

Language: Russian

Citation: Ismatov, S. (2021). Idiosyle - author's occasional specificities. *ISJ Theoretical & Applied Science*, 11 (103), 333-336.

Soi: <http://s-o-i.org/1.1/TAS-11-103-23> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.23>

Scopus ASCC: 1203.

ИДИОСТИЛЬНЫЙ - АВТОРСКИЙ ОККАЗИОНАЛ СПЕЦИФИЧНОСТИ

Аннотация: В статье представлены теоретические взгляды на изучение авторской идиостиля, которая является одним из проблемных вопросов в области поэтического синтаксиса. В рамках узбекского поэтического синтаксиса подчеркивается важность изучения идиостиля автора как отдельной категории при изучении узбекской поэтической речи на основе опыта мировой лингвистики.

Ключевые слова: лингвопоэтика, лингвостилистика, риторика, поэтический синтаксис, поэтическая речь, идиостиль, идиолект, выразительность, общение, экстралингвистика.

Введение

Вопрос об индивидуальном стиле автора выступления - один из важных вопросов стилистики. История изучения языка как центральной проблемы методологического анализа и описания языка на основе методологических норм восходит к XVII веку в мировой лингвистике. По словам Е.В. Ларченко, изучение индивидуального стиля (идиостиля) автора речи, акцент на авторский стиль впервые появился во французском языкознании, в работах по риторическим вопросам. Он начал изучать речь не как определенную реальность, а как продукт человеческой мысли. Поэтому стиль они рассматривали как индивидуальную черту человека, а не как вид искусства. Поэтому было указано, что идиостиль автора (учитывая, что этот термин очень популярен в мировой лингвистике,

мы также сочли необходимым использовать этот термин) тесно связан с его психикой.

Первые исследования идиостиля автора в русском языкознании начались в 50-60-е годы XX века, первые сведения об идиостиле дал в исследованиях В.В. Виноградова - в его произведениях о стиле известных писателей [1, с. 56]. Изучение идиостиля творцов - одна из проблем лингвистики, которая возникает на стыке лингвистики и литературоведения. Только эти две науки рассматривают объект исследования с разных сторон. Лингвистика изучает особенности использования языковых средств, такую систему особенностей, но одного этого недостаточно для изучения идиостиля автора. Помимо чисто лингвистического анализа, на основе литературных критериев изучаются такие вопросы, как композиция, сюжет, идея

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

произведения. Лингвистика также исследует ряд вопросов, таких как литературные нормы, степень, в которой автор придерживается этих норм, нарушение или изменение литературных языковых норм для определенных стилистических целей, а также взаимосвязь между современным литературным языком и идиостилем автора. Диссертация С. Умировой можно назвать первой исследовательской работой по изучению авторского идиостиля в узбекском языкознании [2, с. 48]. В своей диссертации она исследует идиостиль под термином «поэтическая индивидуальность», и «благодаря индивидуальному мастерству писателя любой языковой материал, используемый в тексте, может стать поэтическим единством и индивидуальным инструментом, уникальным для этого творческого стиля. Лингвопоэтические исследования являются кульминацией общих филологических исследований, и для них в качестве объекта наблюдения принимаются высокоуровневые возможности языка, являющегося высшим выражением человеческих чувств. Изучение этого вопроса подчеркивает, что он очень актуален для современной лингвистики. Автор диссертации не вдавался в подробности вопроса об идиостиле, поскольку преследовал цель раскрыть поэтическую индивидуальность поэта У. Азима. Она описала это явление на примере стихов У. Азима. Тем не менее, диссертация важна как работа, подчеркивающая актуальность идиостильной проблемы. Формирование понятия идиостиля одновременно приводит к формированию понятия языковой личности (говорящего). «Не выходя за пределы языка, не обращая внимания на его автора, невозможно делать определенные выводы о языке и его природе без учета главного носителя языка - человеческого фактора», - пишет Балли [4, с. 27]. Он также подчеркивает, что стилистика - это сам человек. Следовательно, понятия языковой личности и идиостиля тесно связаны.

Понятие языковой личности обобщает знания и представления о науках лингвистики и психологии. Теория языковой идентичности изучает информацию о языковом носителе и его языковом характере. В процессе изучения личности языка, его идиостиля и возможностей языка того периода, в котором он жил, становятся ясными, настолько великие творцы обогащают язык своего времени уникальными единицами. Вот почему так важно изучить идиостиль писателя как языковой личности. Изучение языка обычного гражданина, политика, лидера дает информацию об их способности использовать язык и свою речь, об их личности. Вот почему понятие идиостиля широко используется в современных лингвистических исследованиях.

Таким образом, идиостиль - это совокупность речево-методологических особенностей языка писателя, публициста, ученого или конкретного лингвиста, через которую реализуется языковой характер языковой личности [5, с. 95]. Понятие идиостиля также используется в лингвистике в работах, в которых изучается стиль произведения искусства, в смысле выявления проблем конкретного художника или стиля конкретного произведения. В исследованиях, посвященных лингвопоэтическому анализу поэтических произведений, идиостиль описывается как сложная система лингвистических методов и средств, служащих для освещения творческого художественного мира [6, с. 37]. Это определение показывает, что в методе выбора слов и выражения мысли человек подчиняется языковым законам, которые свойственны только ему и применимы только к нему.

Соответственно, идиостиль как лингвистический термин представляет собой сокращенную форму индивидуального стиля (стилевого сочетания), означающего определенный комплекс стилей, включающий языковые особенности художника. Этот термин используется в научных трудах, посвященных анализу произведения искусства, и используется в смысле уникального и неповторимого стиля речи автора, означающего умение подбирать слова и стиль передачи идеи, резко отличающейся от стиля других авторов. В мировой лингвистике термин идиостиль активно используется в области лингвокультурологии, лингвопоэтики, лингвостилистики с 90-х годов прошлого века. На этой основе было создано исследование по изучению идиостиля известных художников слова - поэтов и писателей. Анализируя тексты художественных произведений в рамках структурной модели языка, учитывая специфику языковой структуры текста, лингвисты используют термин идиостиль в антропоцентрическом подходе к тексту [7, с. 198] также использовали термин «языковая личность».

В современной лингвистике популярны два типа подходов к изучению языка: структурно-функциональный и антропоцентрический. Невозможно полностью оценить языковые материалы, изучая их на основе только одного подхода. Язык - настолько сложная система, что целесообразно работать на основе различных аспектных критериев, используя все методы исследования при ее изучении. Поэтому, говоря об идиостиле, давать ему одностороннюю оценку нецелесообразно. Автор поэтической речи, как наследник языка и культуры своего народа, уникальным образом описывает мир через свою речь, создавая свой собственный стиль. В традиционной лингвистике лингвисты упускают из виду эту особенность речи.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Существует также термин идиолект, связанный с термином идиостиль, и существуют разные взгляды на использование этих терминов и концепций, которые они выражают, а также на то, какие явления следует понимать под этими терминами. Если группа ученых считает термины идиостиль и идиолект двумя терминами, обозначающими явление [3, с. 30], вторая группа ученых противопоставляет идиолект идиостилю и литературному языку, используя его как единицу, представляющую нормы обыденного языка. Третья группа трактует идиолект как материальную основу идиостиля (по нашему мнению, идиолект здесь также признается основой просторечия) [6, с. 48]. На наш взгляд, описания авторов, выдвинувших третью точку зрения, близки по своей сути, потому что идиостиль - это широкое понятие идиолекта, как уже упоминалось выше, это использование конкретным художником языковых инструментов. Другое слово означает умение выбирать и стиль донесения мысли до читателя. Идиолект, с другой стороны, является более узким понятием, чем идиостиль, и используется по отношению к языковым (лексическим или фразеологическим) единицам, которые не существуют в литературном языке, но используются в просторечии или одним автором. Мы сочли необходимым использовать эти два термина в одном и том же смысле в этой работе. При методологическом анализе языковых средств невозможно определить идиостиль автора, не обращая внимания на их функциональность для конкретной цели в речи, нормы словоупотребления, особенности формирования синтаксических приемов. Выявление авторской идиостиля требует эффективного использования всех исследовательских методов лингвистики и ее подхода в различных аспектах, поскольку авторская идиостиль полностью отражает сложную систему языковых средств родного языка. В то же время автор служит источником для обогащения языка новыми модулями и инструментами.

В современной лингвистике актуальным остается освоение методов традиционного структурализма, изучение творческого языка и стиля, авторского художественного мира, идиостиля, отражающего поэтический мир. Это исследование, основанное на обобщении лингвистических и литературных критериев. Стратегия этой науки заключается в изучении произведения искусства, которое является объектом изучения для обоих. Анализ языковых единиц произведения важен для языкознания, а художественно-эстетическая проработка

произведения важна для литературоведения [8, с. 382]. Этот факт также определяет одинаковые и последовательные и дополнительные критерии в интерпретации наук. С этой точки зрения целесообразно подойти к вопросу об авторской идиостилю. Использование коммуникативных единиц в лингвистике, лингвистические и стилистические вопросы следует учитывать при определении идиостиля автора, а жанрово-методологические и художественно-эстетические вопросы - в литературной критике [9, с. 89].

В лингвистике автор анализирует специфику употребления языковых единиц. Изучение словарного запаса автора целесообразно в контексте грамматических, парадигматических, семантико-синтаксических и ассоциативных отношений [10, с. 128]. Этого требует использование нелитературных единиц в произведениях некоторых писателей. Например, частое использование диалектики в творчестве писателя Тога Мурада - методологическая особенность. Специфика и неповторение идиостиля также очевидны в когнитивных исследованиях. Анализ авторского языка в этом отношении позволяет определить смысловое поле объективного мира, описываемого автором.

Исследования идиостиля сосредоточены прежде всего на несоблюдении автором общих законов и принципов при создании текста художественного произведения, отклонении от грамматических законов и использовании «нестественных» методов и инструментов в выражении своих философских взглядов [11, с. 87]. Но это не значит, что писателя всегда создают произведение в обход грамматических правил. Автор, как владелец определенного языка, всегда следует законам, присущим этому языку. Соблюдаются только особенности стиля повествования и словоупотребления. В некоторых случаях могут иметь место чрезмерные отклонения в отображении специфики речи конкретного персонажа или в описании его или ее характера. Идиостиль определяет, как инструменты единицы для всех языковых уровней используются в игре.

Недавние исследования в лингвистике сосредоточены на структурном изучении языка, возможностях использования языка людьми, способности выражать свой внутренний мир через язык. Изучение идиостиля автора также является частью исследований, проводимых в этом направлении. Изучение авторского идиостиля - продукт антропоцентрического подхода к языку, изучение которого означает изучение языка и стиля творцов, богатого выразительного потенциала нашего родного языка.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

References:

1. Larchenko, E.V. (2016). *Individual style and genre features: Based on the works of Jacques Charpantreau*. Abstract ... dissertation ... phil ... candidate of sciences ... - Smolensk.
2. Vinogradov, V. V. (1963). *Stylistics. The theory of poetic speech. Poetics*. - Moscow.
3. Umirova, S. (2019). *Linguistic means and poetic individualism in Uzbek poetry (on the example of the poetry of Usmon Azim)*: Phil. fanl. b.fal.doc. Dissertation abstract (PhD). - Samarkand.
4. Balli, S. (2001). *French stylistics*. 2nd edition, stereotyped. - Moscow: Tahriyat URSS, - ISBN 5-8360-0407-2.
5. (2006). *Stylistic encyclopedic dictionary of the Russian language*. Ed. Kozhina M.N., 2nd ed., Revised. And add. - Moscow.
6. Bolotnova, N.S. (2004). *The study of the idiom in the modern communicative stylistics of artistic means*. Moscow.
7. Kostomarov, P.I. (2014). Anthropocentrism as the most important feature of modern linguistics. - *Bulletin of the Kemerovo State University*, T1. No. 2 (58).
8. Chernysheva, T.A. (2010). Idiostyle: linguistic contours of education. *Bulletin of the Cherepovets State University*, No. 1.
9. Malysheva, E.G. (1997). *Idiostyle of Vladislav Khodasevich (experience of cognitive-linguistic analysis)*. Abstract ... of the dissertation ... of the candidate ... of philological sciences: - Omsk.
10. Ledeneva, V.V. (2000). *Properties of the idiolect*. - Moscow: Publishing house of Moscow. ped. University.
11. Ashimova, A.F. (2013). Idiostyle as a manifestation of the author's linguistic personality on the example of the novel "Doctor Zhivago". *Bulletin of the Minsk University*, No. 3.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](https://doi.org/10.1/TAS) DOI: [10.15863/TAS](https://doi.org/10.15863/TAS)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 08.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sh. Khusanova

Fergana Polytechnic Institute
Lecturer, Fergana, Uzbekistan

Sh. Imomqulov

Namangan Engineering Technological Institute
Assistant, Namangan, Uzbekistan
shuhrat19801221@mail.ru

Yu. Ergashov

Fergana Polytechnic Institute
Associate Professors, Fergana, Uzbekistan

O. Sarimsakov

Namangan Engineering Technological Institute
Dr. Tech. sciences, prof., Namangan, Uzbekistan

INTERACTION OF COTTON FIELD WITH SAW TEETH IN THE GINNING PROCESS

Abstract: Increase in fiber yield due to the improvement of machines for separating raw cotton from seeds, on which the technology of primary processing of cotton is currently being developed.

Key words: Saw gin, Saw tooth geometry, working chamber, Gin process, Fiber, cylinder, construction.

Language: English

Citation: Khusanova, Sh., Imomqulov, Sh., Ergashov, Yu., & Sarimsakov, O. (2021). Interaction of Cotton Field with Saw teeth in the Ginning Process. *ISJ Theoretical & Applied Science*, 11 (103), 337-343.

Soi: <http://s-o-i.org/1.1/TAS-11-103-24> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.24>

Scopus ASCC: 2200.

Introduction

In recent years, changes in the field of primary processing of cotton, the introduction of new techniques and technologies, the reduction of costs through the production of more and better quality fiber in the initial processing of cotton.

The following requirements must be met when ginning cotton: separation of all fibers capable of spinning from seeds, the absence of defects in the fiber and seeds as a result of the action of gin working bodies on the fiber; that the pieces of cotton do not join the fiber or seed that comes out of the demon; it should be possible to adjust the hairiness of the seed and the amount of fiber in the stalk. In the process of ginning, along with partial cleaning of the fiber from impurities and separation of the fiber from the fiber, the following defects can occur: a piece of seed coat

sticky fibers, broken and damaged fibers, knots, twisted fibers, cracks, loose seeds [1,2].

In order not to cause demonic defects, demons and other previous machines must be used in accordance with the technological requirements and they must always be kept in good condition. The main working part of the saw gin consists of a metal saw (with sharp teeth) and a ribbed grille [3,4,5]. As a result of the interaction of these two working parts (organs) with each other, the fiber is separated from the seed, that is, the saw picks up the fiber with its teeth and then forcibly cuts it from the seed, thus separating the fiber from the seed. There will definitely be very rough and negative effects. For this reason, sawdust is not used in the separation of I-III grade long-fiber cotton fiber. During the ginning process, cotton and fiber are cleaned of some fine

Impact Factor:

ISRA (India) = 6.317
 ISI (Dubai, UAE) = 1.582
 GIF (Australia) = 0.564
 JIF = 1.500

SIS (USA) = 0.912
 ПИИИ (Russia) = 3.939
 ESJI (KZ) = 9.035
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

impurities, and a supplier for cotton is used. For fiber, when the fiber is separated from the saw, it is separated from the fiber by the weight of the waste, using the air in it [4-7].

Materials and methods

Let's look at the process of tearing cotton fiber by the teeth of a gin machine saw. In the process, the mass of fiber attached to one saw is m_o (gr). If the number of saw teeth is z and the number of saw turns is n (rpm), the efficiency of the fiber separator per 1 min is as follows:

$$P_m = m_o z n, \quad (1)$$

If there are N saws in a single-saw cylinder and the output is expressed in hours:

$$P_m = 60 m_o z n N, \quad (2)$$

Typically, medium-capacity ginneries are equipped with 2 fiber separation machines and the average productivity is 10 tons (10,000 kg) per hour, and 5 tons (5,000 kg) per machine. Accordingly, taking into account that DP saws have 130 saws, 1 saw has 280 teeth, the number of saw turns is 730 rpm.

$$m_o = P_m / (60 z n N) = 5000 / (60 \cdot 280 \cdot 730 \cdot 130) = 3.14 \cdot 10^{-6} \text{ kg}$$

Accordingly, it can be said that when the working capacity of a gin machine is 5 tons per hour, one tooth of it corresponds to 3.14 10^{-6} kg or 3.14 10^{-3} g of cotton fiber [6-10].

Figure 1 shows a graph of the mass of fiber per tooth depending on the productivity of the gin machine and the number of rotations of the saw cylinder.

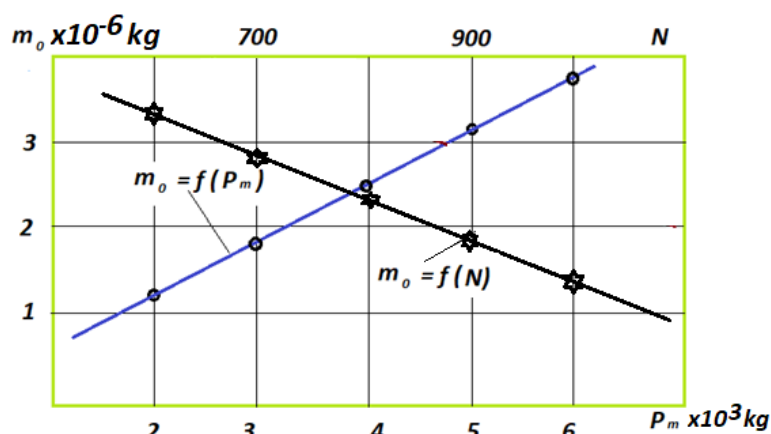


Figure 1. Dependence of the mass of fiber per tooth on the productivity of the gin machine and the number of saw cylinders

According to him, as the productivity of the gin machine increases and the number of saw cylinders decreases, the amount of fiber per saw increases, and conversely, as the gin machine decreases and the number of saw cylinders increases, the amount of fiber per saw increases. the amount of incoming fiber decreases. This is logically correct. Therefore, the ultimate goal in production is not to increase the amount of fiber per tooth, but to increase the overall productivity of the gin machine.

Now, let's see how much of the space between the saw teeth is occupied by the fibers attached to one saw tooth. According to the references, 1 fiber of medium fiber cotton is $m_t = (0.5 - 0.6) \cdot 10^{-5}$ grams. In this case, the number of fibers per saw tooth is equal to:

$$N_t = m_o / m_t = 3.14 \cdot 10^{-3} / (0.5 - 0.6) \cdot 10^{-5} = 628 - 523 \text{ pcs.}$$

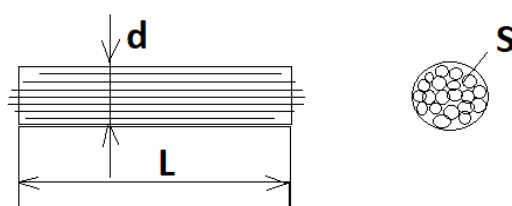


Figure 2. Scheme for determining the cross-sectional area of a fiber tuft.

The fibers attached to the saw are in the form of tufts (Fig. 2). We try to determine the total cross section and the volume it occupies.

If the tuft has diameter d and length L , its size is:

$$V = S L$$

The diameter of one fiber

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

$dt = 15-25 \mu\text{m} \approx 2 \times 10^{-2} \text{ mm}$, the cross-sectional area is as follows:

$$S_t = 0.25 \pi d^2 = 0.25 \times 3.14 \times 4 \times (10^{-2})^2 = 3.14 \times 10^{-4} \text{ mm}^2;$$

When the number of fibers in the tuft is N , the surface occupied by the tuft is equal to:

$$S = k N S_t \quad (3)$$

Here k is the coefficient of filling the cross-sectional area of the fibers. Its value is higher than 1.

Let $k = 1.25$. According to it,

$$S_t = k N S_t = 1.25 \times (628 \div 523) \times 3.14 \times 10^{-4} = 0.25 - 0.21 \text{ mm}^2;$$

We assume $S_t = 0.25 \text{ mm}^2$.

We assume that the average fiber length is $L = 32 \text{ mm}$ for medium fiber cotton. In that case

$$V = (0.25 \div 0.21) \times 32 = (6.72 \div 3.3) \text{ mm}^3.$$

We will try to determine how much of the surface area of the fiber bundle occupies the space between the saw teeth. The space between the saw teeth is triangular. We define its surface. To do this, we find the sides of a triangle in Figure 3:

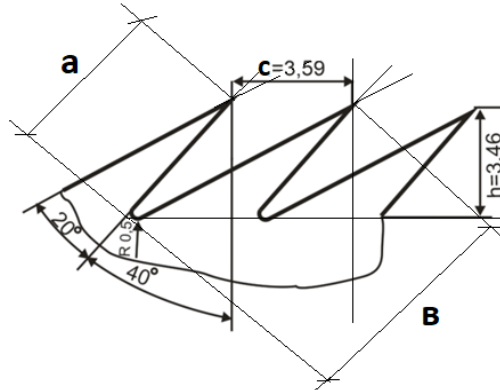


Figure 3. Scheme for determining the area between the saw teeth

$$B = h / \cos 60 = 3.46 / 0.5 = 6.92 \text{ mm}$$

$$a = h / \cos 40 = 3.46 / 0.77 = 4.49 \text{ mm}$$

We determine the face of a triangle with 3 sides by Geron's equation:

$$S = \sqrt{p(p-a)(p-b)(p-c)}$$

$$= \sqrt{7.5(7.5-3.59)(7.5-6.92)(7.5-4.49)}$$

$$= \sqrt{7.5 \cdot 3.91 \cdot 0.58 \cdot 3.01} = 7.2 \text{ mm}^2$$

Here r is the half perimeter, $r = 0.5(a+b+c) = 0.5(4.49 + 6.92 + 3.59) = 7.5 \text{ mm}$.

Let e be the coefficient indicating how much of the area between the saw blades occupies.

It can be defined as follows:

$$e = (S_t / S) \times 100\% = (0.25 / 7.2) \times 100\% = 3.47\%$$

this value is very small and indicates that the cotton tuft is only 1/29 of the area between the saw teeth. This means that very little of the useful area between the saw teeth is working and most of the area is left empty.

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

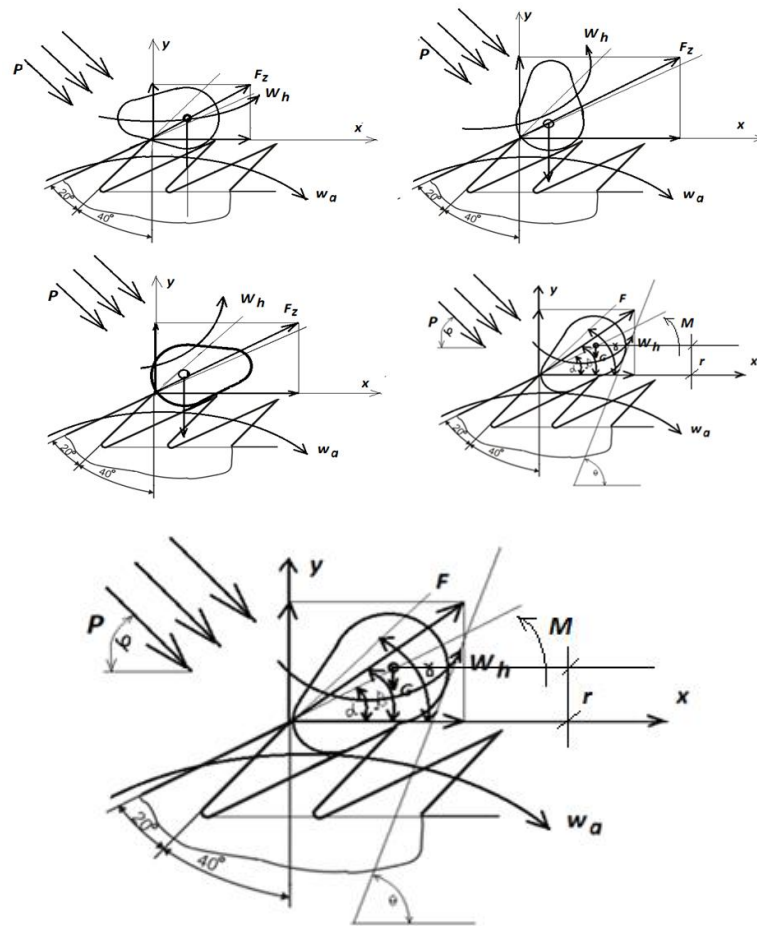


Figure 4. The scheme of the most dangerous situation in the interaction of sawdust with cotton seeds

Accordingly, it can be said that the size of the saw teeth is obtained with a very large reserve, ie for the current workload (for example, 5 t/machine hour) the area between the teeth is large and logically reduce it to a certain extent. does not reduce the efficiency of the sawing process. We know that the raw material roller formed in the working chamber of the gin machine rotates at a linear speed of 2-2.2 m/s. During operation, the teeth of the saw cylinder are driven into the raw material shaft at a speed of 12.0 m/s. The raw material roller consists of newly inserted pieces of cotton into the chamber and partially ginned, as well as seeds that have been completely torn off. May hit the spherical part. Here, what the teeth collide with is a probable event. However, observations show that in 60-70% of cases, the teeth come in contact with the newly introduced cotton, ie fibrous mass. This is because the cotton falling from the top of the raw roller forms a fibrous layer around the roller, and the front apron of the working chamber slides on the inner wall and meets the saw cylinder.

However, in 30-40% of cases, the saw teeth may encounter a half-cleaned or completely cleaned seed coat. The possible scenarios are shown in Figure 3. If

we observe these cases, we can see that the strength of the wall of the large spherical part of the seed is higher than on other sides, the depth of immersion between the saw teeth is low, and when the seed hits the surface of the grate, it has a high chance of falling out. In these cases, it should be noted that the probability of damage is relatively low, although there is no guarantee that the seed wall will not be damaged at all. The most dangerous situation is the situation where the cotton seed is caught between the three sides and the saw teeth and thus hits the surface of the grate (Fig. 4).

First, we consider the process of impact of the saw teeth with a free-standing cotton seed with the raw roller attached. Let the mass of the saw tooth be m_1 , speed v_1 , mass of cotton seed m_2 , speed v_2 . The shock process can be described as follows:

$$\left. \begin{aligned} m_1 \frac{dv_1}{dt} &= -F, \\ m_2 \frac{dv_2}{dt} &= -F. \end{aligned} \right\} \quad (4)$$

Here the impact force is not complete, but its projection on the axis passing through the center of

Impact Factor:

ISRA (India) = 6.317
 ISI (Dubai, UAE) = 1.582
 GIF (Australia) = 0.564
 JIF = 1.500

SIS (USA) = 0.912
 PIHII (Russia) = 3.939
 ESJI (KZ) = 9.035
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

gravity of the seed deforms the seed. And with its projection on the axis perpendicular to the said axis, the distance M to the center of gravity of the seed creates a moment of force M. He tries to turn the seed (Fig. 4). When the value of the force does not change, an increase in its projection on one axis, for example on an axis perpendicular to the radius, leads to a decrease in its projection on the axis along the radius. That is, the force of impact is completely transformed by the force that turns the seed. This situation is important for us. This is because if the seed rotates around the point of contact with the saw tooth, the fibers on the back of it will meet the saw teeth and the seed fiber will be completely removed. If we increase the value of this force moment, the seed will spin faster and the chance of unraveling its fibers will increase. It is possible to raise the shoulder of power for this, but it is an objective phenomenon and we cannot influence it. Way 2 is to increase the value of the force projection F_x . To do this, reduce the slope of the front corner of the saw teeth to a certain extent. This projection is found as follows:

$$F_x = F \cos \frac{\gamma + \alpha}{2} \quad (5)$$

Here is the angle of inclination of the saw blade relative to the plane perpendicular to the plane at the

point of contact of the front of the saw tooth, α is the angle of inclination of the saw tooth relative to the plane perpendicular to the plane at the point of contact. The back angle of the saw tooth indicates the thickness of the tooth, ie its strength. Therefore, it is advisable to keep it at a level 20 degrees higher than the front angle. Because this angle does not serve to hang the fiber.

The cosine function is 1 when the angle is 0. In this case, the force of impact and its projection are equal, but in this case there is no tooth and no fiber. If it is equal to 0 at 90 degrees, then the projection of the force on the plane perpendicular to the radius is zero, and the tooth loses the ability to hold the fiber. The actual value of the tooth slope is 400 with respect to the radius and 500 with respect to the plane perpendicular to it. This value provides a tooth height of 3.46 mm. To determine the rational angle of inclination, we need to know to what value we need to reduce the height of the tooth. Earlier, when we analyzed the thickness of the fibers attached to the tooth, we said that it is possible to reduce the tooth height to 2 mm by ensuring its fiber-holding properties and toughness. In this regard, we assume a tooth height of 2 mm and find its slope.

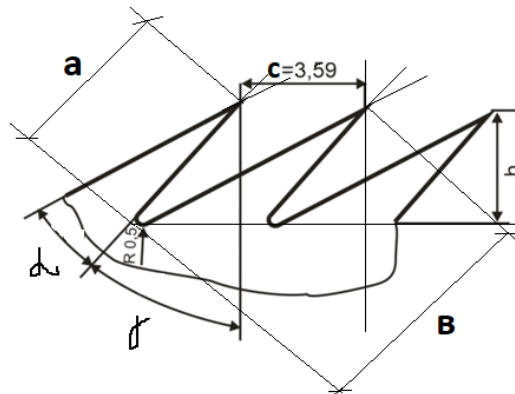


Figure 5. The scheme of finding the slope of the tooth by its height

Figure 4 shows the following:

$$\cos \gamma = h / a ; \cos(\gamma + 20) = h / B, \quad (6)$$

According to the sine theorem:

$$\sin(90 + \gamma) / B = \sin(90 - \gamma - 20) / a = \sin \alpha / c; \quad (7)$$

According to the reduction equations:

$$\sin(90 + \gamma) = \cos \gamma.$$

Let $a = 200$. Tooth pitch does not change: $S = 3.59$ mm; Assuming the tooth height $h = 2$ mm,

$$\cos \gamma = 2/a ; \cos(\gamma + 20) = 2/B ; \cos \gamma / B = \cos(\gamma + 20) / 3.59 = \sin 20 / c \Rightarrow$$

$$\cos \gamma / B = \sin 20 / 3.59 \Rightarrow \cos \gamma = 0.095B = 2/a ; 2/B = 3.59 \times 0.34 / 3.59 \Rightarrow$$

$$2/B = 0.34 \Rightarrow B = 2 / 0.34 = 5.89 \text{ mm} \Rightarrow a = 2 / (0.095 \times 5.89) = 3.57 \text{ mm}$$

$\Rightarrow \gamma = \arccos(0.56) = 0.98 = 56.2^\circ$ or when taken relative to a plane perpendicular to the radius $90 - 56.2 = 33.9^\circ$. The inclination of the back of the tooth is $39.9 + 20 = 59.9^\circ$.

The area between the teeth, according to Geron's equation:

$$S = \sqrt{p(p-a)(p-B)(p-c)} =$$

$$= \sqrt{6.525(6.525 - 3.57)(6.525 - 5.89)(6.525 - 3.59)} = 5.99 \text{ mm}^2$$

$$\text{Half perimeter } p = 0.5(3.57 + 5.89 + 3.59) = 6.525 \text{ mm}$$

The coefficient e , which indicates the area of the fiber bundle between the saw teeth, can be determined as follows:

$$e = (S_t / S) \times 100\% = (0.25 / 5.99) \times 100\% = 4.17\%$$

Impact Factor:

ISRA (India) = 6.317
 ISI (Dubai, UAE) = 1.582
 GIF (Australia) = 0.564
 JIF = 1.500

SIS (USA) = 0.912
 PIIH (Russia) = 3.939
 ESJI (KZ) = 9.035
 SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

This was 3.5% in the current option. In our option it increased by 4.2%. However, it should be noted that there is a large reserve. Now, let's take a closer look at the shock. The rate of convergence of the centers of gravity of the affected objects during the impact is as follows:

$$\alpha = v_1 - v_2 \quad (8)$$

According to Hertz's law, the force of impact can be expressed as follows:

$$F_z = n\sqrt{a^3} \quad (9)$$

The value of n taken for static cases also works for the shock process. Accordingly:

$$n = 4 \frac{\sqrt{R_1}}{3\pi(k_1 + k_2)} \quad (10)$$

Where R_1 is the radius of the impact body, the coefficients

$$k_1 = (1 - \nu_1^2) \pi E_1 \quad (11)$$

$$k_2 = (1 - \nu_2^2) \pi E_2$$

In this case, E and ν are the Yung modulus and the Poisson's ratio, respectively. Indices 1 and 2 indicate the affiliation of the blower (saw tooth) and the receiver (cotton seed). Differentiating (8) and substituting (9) for (4), we obtain:

$$\ddot{a} = nM\sqrt{a^3}, \quad (12)$$

bu yerda

$$M = \frac{1}{m_1} + \frac{1}{m_2}, \quad (13)$$

Now, if we integrate each of the 2 sides of equation (12) by \dot{a} , we get:

$$\dot{a}^2 - \nu^2 = \frac{4}{5} Mn\sqrt{a^5} \quad (14)$$

Where ν is the velocity of the objects approaching each other at the onset of the stroke ($t = 0$), m / s.

The maximum value of deformation a_I occurs when the body stops moving, ie $\dot{a} = 0$.

$$a_I = \sqrt{(5 \nu^2 / 4 Mn)^5} \quad (15)$$

Now, on the basis of the obtained equations, it is possible to determine all the necessary parameters. The speed of convergence of objects: the speed of the saw teeth is 12 m / s, the speed of the seed is 2 m / s and the velocities are one-way, so their difference is: $\nu = 12 - 2 = 10$ m / s.

$$(13) \text{ ga ko'ra } M = \frac{1}{m_1} + \frac{1}{m_2} = \frac{1}{5} + \frac{1}{6.1 \times 10^{-2}} = 3.83 \text{ g}^{-1}.$$

From (11) we can find k_1 , k_2 , from (10) n , from (15) a , from (9) F_z impact force. In this case, E and ν are the Jung modulus and Poisson's ratio for steel, respectively, $E = 200 \times 10^9$ Pa; $\nu = 0.24 - 0.28$, $E = 12 \times 10^9$ Pa; $\nu = 0.25$ for cotton seeds (for flexible material); When the radius of the tooth tip $R_1 = 0.1$ mm, it is possible to obtain graphs of the change in the impact force F .

The impact force creates a voltage G in the seed coat. In order not to break the seed, this voltage should not exceed the G_r strength limit of the seed coat. Its value can be determined as follows:

$$G = \frac{F_z}{s_k} \leq G_r, \quad (16)$$

Here, s_k is the impact area (the size of the surface in contact of the seed coat with the saw, m^2), G_r is the critical stress breaking the seed coat, Pa. A voltage of 100-130 MPa is sufficient to break 1 fiber. Since the seed coat material is close to the fiber material, we take this stress as the critical stress that breaks the seed: By determining the impact stress for different values of $G_r = 120$ MPa and s_k force area, we can determine the rational radius of rotation R_1 for the saw tooth.

References:

1. Sarimsaqov, A.U., Karimov, A.I., & Muradov, R.M. (2012). Arrali jin ishchi kamerasiidagi jarayonlarni amaliy va nazariy statik hisobi. *Mexanika muammolari*, Toshkent, № 2, pp. 60-63.
2. Ergashev, Yu., Xusanova, A.Sh., & Babayeva, M. (2020). Arrali jinlash selektiv texnologiyasining dinamik xarakteristikasini tahlili. *FarPI Ilmiy-texnika jurnali-Farg'ona*, №1, pp.252-2555
3. Sarimsaqov, O.Sh., Sattoriv, N.M., Siddiqov, Z.A., & Xusanova, Sh.A. (2020). Improvement of the Process in Disassembling of Cotton Stack and Transferring the Cotton into Pneumotransport. *International Journal of Advanced Science and Technology*, 29(7), pp. 10849-10857.
4. Khusanova, S., Esonzoda, S., Mirzayev, B., & Khakimov, I. (2021). Methods of control of air pressure in the working chamber of arrali demon machine. *International Engineering Journal For Research & Development*, 6(3), 5-5.
5. Alisher, S., Otabek, S., Shohida, K., & Khakimov, I. (2021). Study of constructive and technological parameters of sawing machines jins and linters. *International Engineering*

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

- Journal For Research & Development*, 6(3), 11-11.
- Ochilov, M. M., Husanova, Sh. A., & Hakimov, I. Sh. (2021). Equipment improved except the saw. *Jekonomika i socium*, (2-2), 113-116.
 - Alibekovna, X. S., & Shavkatbekovich, K. I. (2020). Increasing Work Efficiency by Improving the Working Camera and Construction of Saw and Roller Mechanism. *JournalNX*, 6(06), 740-742.
 - Makhmudovna, N. M., & Mukhammadkarim, M. (2021). The importance of improving technological processes for storage and processing of dry cocoons grown in different seasons. *International Engineering Journal for Research & Development*, 6(3), 3-3.
 - Nabiev, K. K., Jakubov, N. Zh., & Nijazalieva, M. M. (2019). Puti povyshenija nadjozhnosti niti pri stachivanii shvejnyh izdelij. *Vestnik nauki i obrazovanija*, 20-3 (74).
 - Zikirov, M. C., Qosimova, S. F., & Qosimov, L. M. (2021). Direction of modern design activities. *Asian Journal of Multidimensional Research (AJMR)*, 10(2), 11-18.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 30.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Ikbol Abduxalilovich Ikromov
Fergana Polytechnic Institute
Lecturer, Fergana, Uzbekistan

Axrorjon Abdukaxxorovich Abduraximov
Fergana Polytechnic Institute
Assistant, department of Land Transport Systems and Their Exploitation,
Fergana, Uzbekistan

Haydarali Fayzullayev
Fergana Polytechnic Institute
Lecturer, Fergana, Uzbekistan
iqbolikromov@mail.ru

EXPERIENCE AND PROSPECTS FOR THE DEVELOPMENT OF CAR SERVICE IN THE FIELD OF CAR MAINTENANCE

Abstract: It is used in the performance of work related to the implementation of repairs and maintenance of vehicles in the most important and easiest ways in the repair of motor vehicles. The article summarizes the experience and prospects for the development of the organization of car service in the field of car repair with the help of scientific views.

Key words: Car, repair, consulting, diagnostics, car maintenance.

Language: English

Citation: Ikromov, I. A., Abduraximov, A. A., & Fayzullayev, H. (2021). Experience and Prospects for the Development of Car Service in the Field of Car Maintenance. *ISJ Theoretical & Applied Science*, 11 (103), 344-346.

Soi: <http://s-o-i.org/1.1/TAS-11-103-25> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.25>

Scopus ASCC: 2200.

Introduction

The main reason for the emergence of car service in the country is the growth of the number of private cars and the growing demand for car production. In our country, car services are developing as an independent service sector. As a result of the sharp increase in the number of private cars in Uzbekistan, the production base of car services has also begun to grow rapidly.

The existing car service companies have been operating since 1974, such as AvtoVAZtexxizmat, KamAZavtotexxizmat, AvtoZAZxizmat, Moskvichavtotexxizmat and others. In the following period, the further growth of the network and structure of car service enterprises was due to the further strengthening of their material and technical base, the establishment of company enterprises and service enterprises operating in the form of firms.

After the independence of the Republic of Uzbekistan, due to the transition to a market economy, the old economic relations have changed, new ones have been formed, and the automotive industry has been created. Car dealerships and car dealerships have been set up to sell their products. The company-style form of car service has been further developed.

Emerging small and joint ventures, firms began to turn to car service companies for maintenance and repair of their vehicles. On the other hand, existing trucking companies have begun to organize car maintenance and repair services in their production facilities and areas. Some maintenance and repair work (washing, tire repair, oil change, electrical work, etc.) has also begun at gas stations and large car storage facilities. In addition, there are many private car repair shops, workshops, maintenance and repair posts operating in the form of small and family businesses.

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

The main part

In the field of car service, a car service market has emerged and competition has emerged, which will further improve the quality of service. In this context, the importance of corporate services [5].

In recent years, the use of alternative motor fuels has become a real solution to energy and environmental problems in the use of wheeled mechanical vehicles, and it is planned to carry out repairs and maintenance in the car service in the firm method [14].

They account for 85-90 percent of their revenue from sales of cars and spare parts, and 10-15 percent from maintenance and repair. Therefore, they have a solid material and technical base, equipped with the most modern diagnostic tools, devices and stands, equipped with highly qualified specialists and workers. service is provided. Chevrolet's Lasseti, Cobolt, Nexia 3 and Spark cars, produced by GM Uz, are enriching the Uzbek and foreign car markets and raising the status of the company's service. 'raises the mother. The technical condition of cars is influenced by many operational factors. The main ones are:

- quality of operating materials (gasoline, diesel fuel, gaseous fuel, lubricants, special fluids - antifreeze, brake fluid, etc.);
- road conditions;
- climatic conditions;
- technical operation of the vehicle (power usage procedures, driving quality);
- quality of maintenance;
- quality of vehicle storage, etc. [12].

Regular customer service (subscription service) further enhances the competitiveness of the company's service enterprises by taking into account the technical condition of the car, forecasting its resources, planning future expenses, providing regular advice and benefits. The quality of service depends on the skill of the service provider, as the share of manual labor in the maintenance of each car is large [13].

In the future, the company car service will be further developed, customer data will be entered into a computer, a schedule of service periods based on a special program will be created several years in

advance, costs will be calculated and the customer's budget will be planned in advance. The next topical issues of the car service:

- be one of the first to provide service for new cars;
- Introduction of new types of services (leasing, rental, preparation for sale, sale and warranty service of used cars)
- Development of car tuning-installation of power steering, air conditioning, car navigator, accessories and other innovations used in previous models;
- development of car service quality management system;
- definition of standards of service and their delivery to clients;
- Development of roadside car service, etc. [6]

Along with branded car service, independent service companies and workshops are also developing. To attract customers at a cheaper price and faster service, to perform specialized work (washing, oil change, minor maintenance, tire repair, repair and painting of body parts, etc.) post-warranty service, the ability to organize service along highways, in remote areas, etc. are the main advantages and reasons for their widespread use. In Uzbekistan, the company car service for foreign cars operates mainly in Tashkent, in the city and district centers for domestically produced cars, and its scope is expanding.

Conclusion

The car service system is further developing in the country, its services are regularly used by more than one million car owners. The development of the material and technical base of the car service to the level of today's requirements, ensuring the rule of law in the field, improving the culture of service, implementation of organizational and economic reforms, introduction of scientific and technical innovations in the production of modern material and technical base should be the determining factors of the technical policy for car service.

References:

1. (1996). *Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated September 3, 1996 No 304 "On issues of production, sale and maintenance of cars of the joint venture" UzDaewooAuto "*.
2. (2007). *Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated February 10, 2007 No 30 "On measures to develop the network of gas filling compressors and gas filling stations and the gradual conversion of vehicles to liquefied and compressed gas."*

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

3. (1993). *Republic of Uzbekistan 28.12.1993 № Law 1006-XII "On certification of products and services"*.
4. (2004). *Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated July 22, 2004 №349 Resolution on measures to introduce quality management systems in enterprises in accordance with international standards.*
5. Sidiqzazarov, Q.M. (2008). *Technical operation of cars.* (p.560). Tashkent: Voris Publishing House.
6. Sidiqzazarov, Q.M. (2006). *Technical operation of cars.* Translated from the revised and supplemented 4th Russian edition (edited by Prof. Kuznesov Ye.S. (p.670). Moscow: Nauka, 2004, p. 535). Tashkent: "Voris-Nashriyot".
7. (2009). *GM UZBEKISTAN Kriterii podbora dilerskix predpriyatiy ZAO «DjiEM Uzbekistan» na vnutrennem rinke.* (p.11). Tashkent.
8. (2000). *ISO 9000:2000 standarti «Sifat menejmenti tizimi. Asosiy tamoyilar va lug'at». Yaxshilash bo'yicha tavsiyalar».*
9. Musadjanov, M.Z., Alixodjayev, A.A., & Rajabov, A.B. (2009). *Servis sovremennih avtomobiley i predpriyatiya avtoservisa.* Uchebnoye posobiye. TADI. (p.37). Tashkent.
10. Hamraqulov, O., & Magdiyev, Sh. (2005). *Avtomobillarning texnik ekspluatatsiyasi.* Toshkent.
11. Ikromov, A.I., & Akhunov, J. A. (2020). Description Of Vehicle Operating Conditions And Their Impact On The Technical Condition Of Vehicles. *The American Journal of Applied sciences*, 2(10), 37-40.
12. Abdukhalilovich, I. I., & Obloyorovich, M. H. (2020). Support for vehicle maintenance. *Asian Journal of Multidimensional Research (AJMR)*, 9(6), 165-171.
13. Bazarov, B. I., Magdiyev, K. I., Sidikov, F. Sh., Odilov, O. Z., & Djamankulov, A. K. (2019). Sovremennyye tendensii v ispolzovanii alternativnykh motornix topliv. *Journal of Advanced Research in Technical Science*, 2(14), 186-189.
14. Ruzibaev, A. N., Obidov, N. G., Otaboev, N. I., & Tozhibaev, F. O. (2020). Ob#emnoe uprochnenie zub`ev kovshej jeksikatorov. *Universum: tehicheskie nauki*, 7-1 (76).
15. Imamovich, B. B., Nematjonovich, A. R., Khaydarali, F., Zokirjonovich, O. O., & Ibragimovich, O. N. (2021). Performance Indicators of a Passenger Car with a Spark Ignition Engine Functioning With Different Engine Fuels. *Annals of the Romanian Society for Cell Biology*, 6254-6262.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 09.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Tochukwu P. Ezekwesili
Nnamdi Azikiwe University
Department of Accountancy
Awka
ezekwesilitochukwu@gmail.com

BOARD OWNERSHIP AND AUDIT QUALITY OF NIGERIAN QUOTED COMPANIES

Abstract: As a result, the impact of board ownership on the audit quality of Nigerian quoted businesses is investigated in this study. The study used secondary data from the annual reports of sixty-four (64) companies listed on the Nigerian Stock Exchange for eight financial years to achieve its goals (2012-2019). With the help of E-views 10 econometric software, regression analysis was used to evaluate the hypothesis. The findings reveal that the ownership structure of public firms in Nigeria has a considerable impact on audit quality. As a result, the study suggests that ownership structure transparency be presented in the form of a pyramid (with percentages explicitly indicated) to improve comprehension for the benefit of all stakeholders.

Key words: Board ownership, Audit quality, Nigerian companies.

Language: English

Citation: Ezekwesili, T. P. (2021). Board ownership and audit quality of Nigerian quoted companies. *ISJ Theoretical & Applied Science*, 11 (103), 347-354.

Soi: <http://s-o-i.org/1.1/TAS-11-103-26> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.26>
Scopus ASCC: 2000.

Introduction

The requirement for external audit services can be attributed to the concepts of agency theory, which state that the firm's ownership and control are separated. According to the agency relationship, the shareholders (principals) entrust the management of the firm's affairs to the managers (agents), who may or may not have a major stake in the company. As a result, the managers are required to provide stewardship of the resources under their control to the investors (owners) in the form of financial statements issued on a regular basis. In emerging economies, where governance mechanisms and institutions such as market for control, financial markets, regulators, monitoring, and the legal system are generally weak, the board of directors is especially crucial (Ujunwa, Salami & Umar, 2013). The effectiveness of the board has been observed to be harmed by information asymmetry, which leads to the agency problem between management and shareholders, in which managers exploit shareholders (Fama & Jensen, 1983). This has been blamed for various company

failures in Nigeria, particularly in the banking sector (Oso & Semiu, 2012).

Investors are supposed to use the financial data to make well-informed company decisions. However, in order for financial data to serve this role, it must be of high quality. Because investors require assurance that the financial information presented by management accurately reflects the true state of the company's financial position, the report must be verified by a third party (an external auditor) due to conflicts of interest that may cause managers to act opportunistically or make decisions that are not always in the best interests of the company (Salehi, Moradi, & Paiydarmanesh, 2017). Thus, the onus of engaging the auditor to perform an independent examination is to provide credibility that the information provided by the company can be relied upon (Ndubuisi & Ezechukwu, 2017).

Variables such as auditor independence, audit tenure, audit-firm reputation, and audit fees have all been mentioned in the literature as potential influencers of audit quality (see for example Bob, 2016; Ndubuisi & Ezechukwu, 2017; Ogoun &

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHLI (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Owota, 2017). Variables such as the company size, financial strength (profitability and debt-ratio), corporate governance, and ownership structure have all been connected to audit quality by various academics (see for example Onaolapo, Ajulo, & Onifade, 2017; Gacar, 2016; Persson, 2011). However, despite these large concentrations of studies on audit quality determinants, attempts at arriving at a consensus have remained elusive due to mixed findings. This study thereby determines the effect of board ownership on audit quality of Nigerian quoted companies.

Review of Related Literature Audit Quality

It is difficult to consider aspects that may enhance or impair audit quality without a thorough understanding of the idea of audit quality and the role of high-quality auditing. As a result, the first section of this chapter focuses on the concept of audit quality, the role of auditors, and audit quality. It is self-evident that various external users require financial statements that have been reviewed by qualified auditors through high-quality audit services in order to make sensible business judgments.

There is a large corpus of research on audit quality and how to measure it. Despite the breadth of the research, no single universally accepted definition or measure of audit quality has developed. Audit quality is defined in a variety of ways by different academics. According to the literature, the lack of a widely accepted definition of audit quality is attributable to the existence of disparities in the financial reporting process and audit market environment. These audit market participants can be classified into three groups: external financial information users, audit customers, and auditors (Sutton, 1993). The quality of an audit can be greatly influenced by the eyes through which it is viewed. Users, auditors, regulators, and other financial reporting stakeholders may have very diverse perspectives on what constitutes audit quality, which influences the types of indicators that might be used to assess audit quality.

Audit quality, according to Okaro, Okafor, and Ofoegbu (2015), is the market-assessed joint probability that an auditor will both discover and report a breach in the client accounting system. This means that the auditor has both the technical competence to detect any material errors during the audit process, as well as the independence to ensure that material errors and omissions are corrected or reported. Similarly, Jackson, Moldrich, and Roebuck (2008) distinguish between real and perceived audit quality. According to DeZoort, Hermanson, Archambeault, and Reed (2002), larger audit companies are better at discovering problems than smaller audit firms because they have more resources and can attract individuals with higher abilities and

expertise. As a result, quality appears to be as auditors employ certain techniques to identify and disclose misstatements in clients' accounting systems. Audit quality has been a contentious issue in recent decades, and most research suggests that a lack of audit quality is one of the most significant causes of financial and corporate failure (Soltani, 2014).

Ownership Structure and Audit Quality

Different patterns of corporate ownership exist in modern firms. Institutional ownership, foreign ownership, block-holder ownership, and management ownership are some of the features of firm ownership. The last entry in the log is the main focus of this investigation. Managerial ownership is defined by Jensen and Meckling (1976) as ownership by directors, management, the commissioner, or anybody actively involved in company decision-making, because the separation of ownership and control incentivizes managers to increase their personal fortune at the expense of shareholders (Jensen & Meckling 1976). Entrenchment is a similar agency problem in which managers have more authority to shirk and obtain perquisites at the expense of shareholders because of their greater voting power. Because of the increased agency risk, when the risk of entrenchment lowers, the demand for, and hence provision of, high audit quality audits should drop as well (Hashim, 2017).

The board of directors is one of the people in charge of running the company on a daily basis. They participate in corporate arrangements and have the authority to control and make decisions on behalf of the shareholders. In businesses, there is a separation of ownership and control. The separation would create serious conflict between the owner of the firm (shareholders) and the board of director as well as the manager transferring the wealth in expense of the owner. The manager would not transparently manage the company in bona fide because they think that it not ours. One of alternatives that would motivate them in managing the company efficiently and effectively is by awarding them a portion of ownership in the company.

As a result, one of the techniques used to address agency conflicts is to strengthen management ownership in order to match owners' interests with the manager's (Jensen & Meckling, 1976). The lower the agency's cost, the more managerial ownership there is. This is because the larger the managerial ownership, the more information the management and the company's owner have, resulting in lower monitoring agent costs. As a result, manager-owners are motivated to lower associated agency expenses by delivering high-quality auditing. As managerial ownership declines, the quality of audits should improve. According to Warfield et al. (1995), managers who control a considerable amount of a company's equity have less incentive to alter reported

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

accounting data. Less incentive to manipulate reported data also indicates a willingness to report the financial report early, reducing the reporting lag, which is another measure of audit quality. This is because a management who owns a portion of the company's stock would be concerned if the auditing processes were delayed or undermined. As managers' stake in the company grows, the gap between their interests and those of the shareholders narrows. On the other side, based on existing literature, it is thought that increasing managers' ownership proportion by reducing information asymmetry will reduce the conflict of interest between managers and shareholders (Mahdavi, Mohammed, Fahime & Mehdi, 2011). In a similar vein, Niskanen, Karjalainen, and Niskanen (2009) used data from 478 Finnish enterprises from 2000 to 2006 to study the association between ownership structure and audit quality demand. The findings demonstrate that increasing managerial ownership reduces the likelihood of a Big4 auditor being hired, but has no effect on the demand for certified auditors. In terms of Big4 audits, their findings also point to a nonlinear relationship between managerial ownership and desire for audit quality. They also discovered that the likelihood of hiring a Big4 auditor rises with the size of the company and the existence of international sales. According to Mahdavi, Mohammed, Fahime, and Mehdi (2011), raising the amount of managerial ownership reduces the chances of selecting a larger audit firm. In this study, management ownership is employed as a proxy for ownership structure. It is indicated by the percentage of a company's directors' holdings to the total number of outstanding shares.

Review of Empirical Studies

For a ten-year period from 2009 to 2018, Olabisi, Kajola, Abioro, and Oworu (2020) investigated the factors of audit quality among 15 insurance companies out of the 25 listed on the Nigerian Stock Exchange. The researchers used an ex-post facto research methodology and panel data regression technique to find a significant link between audit firm size, audit tenure, audit fee, cash flow, and audit quality (p 0.05). They came to the conclusion that audit fees, audit firm size, audit tenure, and cash flow from operations are critical predictors of audit quality, since each of these has had a considerable impact on the audit quality of Nigeria's publicly traded insurance businesses. Nwakoby, Ezejiofor, and Ajike (2018) investigated the association between board traits and directors tunneling in Nigerian conglomerates. The TEx post fact study approach was used, as well as time series data. With the help of SPSS Version 20.0, hypotheses were tested using multiple regression and Pearson Coefficient Correlation. According to the findings, board size has a negative significant link with related party transactions in Nigerian conglomerates. Another finding is that board independence has a considerable

favorable impact on related party transactions in Nigerian conglomerates.

For a period of six financial years, Oyedokun, Yunusa, and Adeyemo (2018) investigated the drivers of audit quality using 12 of the 17 businesses listed in the Nigerian Stock Exchange's Industrial Goods sector (2012-2017). They used STATA to conduct panel regression analysis and discovered that auditor tenure had a positive but insignificant connection with audit quality. From 2010 to 2016, Ndubisi, Okeke, and Chinyere (2017) investigated the factors of audit quality in a sample of ten (10) healthcare companies listed on the Nigerian Stock Exchange (7 years). With the help of E-view 9, they used the Ordinary Least Square (OLS) and Granger causality tests and found evidence of a positive and statistically significant relationship between audit independence, audit tenure, audit firm size, and audit quality of healthcare firms listed in Nigeria at the 5% level of significance.

Ezejiofor and Erhirhie (2018) looked into the impact of audit quality on deposit money bank financial performance in Nigeria. The data for the study was acquired from annual reports and accounts of listed Nigerian deposit money institutions, using an ex post facto research design. To examine the hypotheses, regression analysis and coefficient correlation were used. The findings revealed that audit quality has a substantial impact on the financial performance of Nigerian deposit money institutions. Ndubisi and Ezechukwu (2017) investigated the factors that influence audit quality among Nigerian deposit money institutions. They looked at the impact of audit fee, audit firm tenure, and audit firm size on audit quality in particular. They used secondary data from 2010 to 2015 to do their research. Employing the Pearson coefficient of correlation, Ordinary Least Square (OLS) and Granger causality test, they find that there is a positive and statistically significant relationship between audit fees, audit tenure, audit firm size and audit quality of banks listed on the floor of Nigerian Stock Exchange at 5% level of confidence. The impact of corporate particular factors on audit quality was investigated by Akhalumeh, Agweda, and Ogunkuade (2017). They investigated the impact of firm size, board size, board independence, leverage, and firm profitability on Big4 audit quality. The study's data came from annual reports and accounts of fifty-five (55) companies registered on the Nigerian Stock Exchange, with 2010 serving as the case study. They used multiple regression analysis and discovered that all of the explanatory variables and the dependent variable indicated above have a substantial positive association. Eriabie and Dabor (2017) looked at the impact of audit quality on earnings management in all eighteen banks that were listed on the stock exchange in December 2010. They based their findings on secondary data collected between 2005 and 2010. (representing the pre-IFRS era). They used multiple

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

regression analyses, which were carried out year by year across the study's six-year duration. They discovered that both the audit fee and the change in auditor are related to abnormal loan loss provision, which they utilized as a proxy for earnings management. Onaolapo et al. (2017) investigated the impact of audit fees on the audit quality of Nigerian cement manufacturing enterprises. They used secondary data from four (4) manufacturing businesses' published annual reports over a six-year period (2010-2015). Using the OLS model estimate technique, they discovered that audit fee, audit duration, client size, and leverage ratio all had a significant association with audit quality. While only the audit fee has a significant beneficial impact on audit quality, the other variables of leverage, client size, and audit tenure do not. Ogoun and Owota (2016) investigated the factors that influence audit quality in Nigerian small and medium-sized audit businesses. They looked at the impact of audit fee, customer retention, and market expansion on audit quality in particular. Their research included panel data from a panel of small and medium-sized audit firms in Nigeria, which was collected using a structured instrument and modeled using the Likert Scale paradigm with values ranging from 1 to 5. They employed pairwise Granger Causality Tests and the standard least square regression approach. They discovered that audit fees and market expansion drive audit quality, whereas client retention strategies had a detrimental impact on audit quality. From 2009 to 2013, Babatolu, Aigienohuwa, and Uniamikogbo (2016) investigate the impact of auditor independence on audit quality in seven (7) randomly selected deposit money institutions in Nigeria. The participants in this study were twenty (20) Nigerian listed deposit money banks. Their findings demonstrated a positive association between audit fee, audit firm rotation, and audit quality, as well as a negative relationship between audit firm tenure and audit quality, using descriptive statistics, correlation, and the ordinary least square (OLS) regression technique. The correlation between audit quality and leverage was substantial, negative, and statistically significant on the correlation matrix. Monye-Emina and Jeroh (2014) used secondary data on selected insurance companies quoted on the Nigerian stock Exchange's floor up to 2013 to investigate the factors of audit report credibility (audit quality) in the Nigerian insurance sector. They used the Ordinary Least Square (OLS) regression technique and discovered that auditor independence, experience, and audit report lag all had positive relationships with audit report credibility, however auditor tenure has a negative association. Akhidime (2015) investigated how Nigerian banks' audit quality is influenced by their board structure and corporate characteristics. Over a five-year period, they tested a total of 19 banks from a population of 25 Nigerian banks. Their binary

logistic regression study revealed that non-executive, independent directors, as well as director share ownership, had a beneficial impact on the audit quality of the sample banks. Okolie (2014) investigates the relationship between auditor tenure and independence and earnings management (discretionary accruals) in Nigerian enterprises. On a total of 342 company year observations, the study used secondary data gathered from the Nigerian Stock Exchange fact book. The empirical analysis shows that audit tenure and auditor independence exert significant effects and exhibit significant relationship with the amount of discretionary accruals of quoted companies in Nigeria.

Methodology

The study makes use of ex-post facto research. The suitability of this design for this study is based on its primary goal of studying the relationship between one or more variables in which the variables are not amenable to the researcher's manipulation. Data was acquired only from the annual reports and accounts of the selected quoted companies to guarantee that the information obtained was reliable. Data for the time under consideration was also gathered using relevant NSE-Factbook information.

Population and Sample and Sampling Technique

The study's population comprises of the whole one hundred and seventy (170) firms that were listed on the Nigerian Stock Exchange as of December 2017. (see full list in appendix one and three). This figure includes both financial and non-financial enterprises (57 and 113, respectively).

The study used an equal sample of financial and non-financial organizations as the sample size in order to compare the determinants of audit fees in both financial and non-financial companies. The sampling technique, which was derived from Burley's formula and popularized by Yamane (1967), was used to determine the sample size. The 10% error margin was applied on the entire population in order to arrive at a researchable sample. The formula stated below was adopted:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size;

N = population size (i.e. 170);

e = desired level of significance, (in this case is 10%).

$$n = \frac{170}{1 + 170(0.1)^2} = 62.963$$

n = 63.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Method of Data Analysis

For the purpose of the empirical analysis, the study employed descriptive statistics, of the data was conducted to obtain the sample characteristics among the companies. The panel logistic regression analysis was also used to test the effect of the independent and dependent variables of the study.

Moderation Model

The functional form goes thus;

$$AUDQ_{it} = \alpha_0 + \alpha_1 MOWN + \mu \quad (i)$$

Where:

$\gamma_0, \beta_0, \alpha_0$ = Constants or Intercepts

$\gamma_1; \beta_1; \alpha_1$ = Unknown coefficients or parameters to be estimated

it = "i" represents number of companies; and "t" represents period covered

AUDQ = Audit quality for the eight year period (Dependent variable)

MOWN = Managerial ownership for the eight year period (Independent variable)

μ = Stochastic error term

Data Analyses

Table 1. Descriptive Statistics of the variables

Company	AUDQ	MOWN
Mean	0.589	0.255
Median	1.000	0.186
Maximum	1.000	0.890
Minimum	0.000	0.000
Std. Dev.	0.493	0.249
Skewness	-0.365	0.514
Kurtosis	1.134	1.830
Jarque-Bera	42.857	25.877
Probability	0.000	0.0000
Sum	151.00	65.294
Sum Sq. Dev.	61.934	15.921
Observations	256	256

Source: Researchers Computation using E-views 10 (2021)

Table 1 illustrates the characteristics of the variables utilized in the study using descriptive statistics. The result was given in a comparison format, incorporating the results from both of the companies that made up the study's overall sample. A similar tendency was observed in the case of MOWN, where the result reveals that insiders (members of the board of directors) hold roughly 21.3 percent of shares in companies on average, compared to 25.5 percent in the sector, which is higher.

Furthermore, the variable's Jarque-Bera statistics and accompanying probability value indicate that the data follows a normal distribution. However, in panel data analysis, the divergence from normalcy, as seen

in most of the variables, does not represent a significant concern. The violation of the normalcy assumption provides no substantial problem in panel data analysis, according to the Central Limit Theorem, as noted in Ghasem and Zahediasl (2012), given big enough sample sizes (> 40). The cumulative normality test is presented in the next sub-section by the pooled normality test.

Test of Hypothesis

The hypothesis is re-stated below prior to the statement of the decision rule and their testing:

H₀₁: There is no significant relationship between board ownership structure and audit quality of quoted companies in Nigeria.

Table 2. Regression analysis between board ownership and Audit quality

Dependent Variable: AUDQ
 Method: ML - Binary Probit (Newton-Raphson / Marquardt steps)
 Date: 04/09/21 Time: 22:27
 Sample: 2012 2019
 Included observations: 512
 Convergence achieved after 6 iterations

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHLI (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-9.294885	0.983648	-9.449399	0.0000
MOWN	-0.566734	0.291365	-2.945103	0.0518
McFadden R-squared	0.367525	Mean dependent var		0.630859
S.D. dependent var	0.483044	S.E. of regression		0.375742
Akaike info criterion	0.868121	Sum squared resid		71.01460
Schwarz criterion	0.942623	Log likelihood		-213.2390
Hannan-Quinn criter.	0.897326	Deviance		426.4781
Restr. deviance	674.3006	Restr. log likelihood		-337.1503
LR statistic	247.8226	Avg. log likelihood		-0.416482
Prob(LR statistic)	0.000000			

The z-statistics and probability (Sig.) values of the variable from the regression result in Table 2 were used to test the null hypothesis. The decision rule is to accept H_0 (null hypothesis) when/if the probability value (p-value) exceeds the typical significance test value of 0.05 but if the probability value is less than any of the three, the study reject H_0 . Alternatively, the study accept a variable when the absolute z-Statistic value is greater than or equals to 2.0 (≥ 2). Therefore, the study concluded that there is a significant relationship between ownership structure and audit quality of quoted companies in Nigeria.

Conclusion and Recommendations

According to the results of the hypothesis testing (H_0), management ownership (MOWN) has a negative substantial impact on audit quality. The negative coefficient sign is consistent with the study's apriori expectation, implying that organizations where the top directors possess a substantial percentage of the stock are more likely to have poor audit quality. This result can be explained by the fact that the owners (principals) hand over control of the business to management (according to agency theory), giving the latter vast capabilities.

Thus, if the ownership structure is concentrated on management (i.e., management controls a

considerable number of the shares), the agency problem will be exacerbated because the minority shareholder may not have the essential voting rights to implement board changes. The negative coefficient sign contradicts the findings of Abdullah et al (2008), Adeyemi and Fagbemi (2010), Ejeagbasi et al (2015), and Enofe, et al (2013a), who found that executive and non-executive directors' ownership has the potential to improve auditing quality. However, none of the aforementioned studies found it statistically significant in improving audit quality. On the other hand, the result is consistent with Enofe, et al (2013b) which showed evidence that ownership structure asserts significant negative impact on audit quality.

Based on these findings, it can be concluded that the major variable of interest in terms of the determinants of audit quality in Nigerian listed companies is managerial ownership, while the variable of firm profitability is not statistically significant in any of the models and thus is not of critical importance in this study. Based on the findings of this study, the researchers suggested that, given the strict nature of the required capturing of managerial ownership information from annual financial reports, the disclosure of ownership structure be reported in the form of a pyramid to aid the understandable for the benefit of all stakeholders.

References:

1. Akhalumeh, P., Agweda, F., & Ogunkuade, Z. (2017). Corporate characteristics and audit quality: Evidence from quoted firms in Nigeria. *Journal of Scientific Research and Studies*, 4(3), 59-66.
2. Akhidime, A. (2015). Board structure, corporate characteristics and audit quality of Nigeria banks. *International Journal of Economics, Commerce and Management*, 3(6), 832 – 846.
3. Babatolu, A.T., Aigienohuwa, O.O., & Uniamikogbo, E. (2016). Auditor's independence and audit quality: a study of selected deposit money banks in Nigeria.

Impact Factor:

SIRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

- International Journal of Finance and Accounting*, 5(1), 13-21.
4. DeZoort, F. T., Hermanson, D.D.S. & Reed, S.A., (2002). Audit committee effectiveness: a synthesis of the empirical audit committee literature', *Journal of Accounting Literature*, Vol. 21, pp. 38-75.
 5. Eriabie, S. & Dabor, E.L. (2017). Audit quality and earnings management in quoted Nigerian banks. *Journal of Accounting, Finance and Auditing Studies* 3(1) 1-16.
 6. Ezejiofor, R. A., & Erhirhie, F. E., (2018). Effect of audit quality on financial performance: evidence from deposit money banks in Nigeria. *International Journal of Trend in Scientific Research and Development (IJTSRD)*, 2(6) ISSN: 2456 – 6470, www.ijtsrd.com
 7. Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301–325.
 8. Jackson, A. B., Moldrich, M., & Roebuck, J. K. (2008). Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research*, 19 (4), 637 – 660.
 9. Gacar, A. (2016). Relationship between audit quality and corporate governance: An Empirical Research in Borsa Istanbul. *IOSR Journal of Business and Management*, 18(11), 84-88.
 10. Ghasem, A. & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, 10(2), 486-489.
 11. Hashim, U.J. (2017). Does ownership characteristics have any impact on audit report lag? Evidence of Malaysian listed companies. *World Applied Sciences Journal*, 35(9), 1826-1838.
 12. Jensen, M.C. & Meckling, H.W. (1976), Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
 13. Mahdavi, G., Mohammed, M., Fahime, E. and Mehdi, S. (2011). The impact of corporate governance on auditor choice. *International Research Journal of Finance and Economics*, 68, 129–139.
 14. Monye-Emina, H. E., & Jeroh, E. (2014). Determinants of the credibility of audit reports in the Nigerian insurance sector. *Ilorin Journal of Management Sciences*, 1(1), 2-12.
 15. Ndubuisi, A.N., & Ezechukwu, B.O. (2017). Determinants of audit quality: Evidence from deposit money banks listed on Nigeria Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(2), 117–130.
 16. Niskanen, M., Karjalainen, J., & Niskanen, J. (2009). Demand for audit quality in small private firms: Evidence on ownership effects [online] <http://ssrn.com/abstract=13245992009>
 17. Nwakoby, N. P., Ezejiofor, R.A. & Ajike, A. K. (2018). Board Characteristics and Directors Tunneling: An Empirical Analysis of Conglomerate Firms in Nigeria. *International Journal for Social Studies*, 04(08); ISSN: 2455-3220. <https://edupediapublications.org/journals>
 18. Ogoun, S. & Owota, G.P. (2016). Determinants of audit quality amongst small and medium sized audit firms in Nigeria: An analysis of the impact of audit fee, client retention, and market expansion drives. *International Journal of Business and Social Science*, 7(9), 205-213.
 19. Ogoun, S., & Perelayefa, O. G. (2020). Corporate Governance and Audit Quality in Nigeria. *American Journal of Industrial and Business Management*, 10, 250-261. <https://doi.org/10.4236/ajibm.2020.102016>
 20. Okolie, A.O. (2014). Auditor tenure, auditor independence and accrual – based earnings management of quoted companies in Nigeria. *European Journal of Accounting Auditing and Finance Research*, 2(2), 63-90.
 21. Olabisi, J., Kajola, S.O., Abioro, M.A., & Oworu, O.O. (2020). Determinants of audit quality: evidence from Nigerian listed insurance companies. *Bulletin of Volgograd State University. Economics*, 22(2), 182–192. DOI: <https://doi.org/10.15688/ek.jvolsu.2020.2.17>
 22. Onaolapo, A.A., Ajulo, O.B., & Onifade, H.O. (2017). Effect of audit fees on audit quality: evidence from cement manufacturing companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 5(1), 6-17.
 23. Oyedokun, G.E., Yunusa, G.O., & Adeyemo, K.A. (2018). Determinant of audit quality of quoted industrial goods sector in Nigeria. *Research Journal of Finance and Accounting*, 9(22), 77-85.
 24. Oso, L., & Semiu, B. (2012). The concept and practice of corporate governance in Nigeria: The need for public relations and effective corporate communication. *Journal Communication*, 3(1), 1–16.
 25. Okaro, S. C., Okafor, G. O. & Ofoegbu, G.N. (2015). *The effect of joint audit on audit quality the perceptions of accountants, auditors and accounting academics*. Paper presented at the African Accounting and Finance Association AAFA, 2015 Conference at Mauritius. DOI: 10.13140/RG.2.1.2695.6009
 26. Persson, U. (2011). Factors affecting audit quality: Number of assignments & age of the auditor. *Master's Thesis of Umea School of Business*, 30, 1-94.
 27. Salehi, M., Moradi, M. & Paiydarmanesh, N. (2017). The effect of corporate governance and audit quality on disclosure quality: Evidence

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

- from Tehran Stock Exchange. *Periodica Polytechnica Social and Management Sciences*, 25(1), 32-48.
28. Sutton, S.G. (1993). Toward an understanding of the factors affecting the quality of the audit process. *Decision Sciences* 24(1), 88-105.
 29. Ujunwa, A., Salami, P. O., & Umar, A. H. (2013). CEO duality and firm performance: An integration of institutional perceptive with agency theory. *International Journal of Social, Management, Economics and Business Engineering*, 7(1), 97-103.
 30. Warfield, T.D., Wild, J.J., & Wild, K.L. (1995). Managerial ownership, accounting choices and informativeness of earnings. *Journal of Accounting and Economics*, 20(1), 61-91.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal **Theoretical & Applied Science**

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 09.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sh. Mardonov

Chirchik State Pedagogical Institute
D.p.s., Professor, Uzbekistan

D. Mustafakulova

Jizzakh State Pedagogical Institute
applicant, Uzbekistan

O. Ismatullaev

Jizzakh State Pedagogical Institute
1st-year Master's degree in Special pedagogy

SCIENTIFIC AND PEDAGOGICAL PREREQUISITES FOR THE FORMATION OF SYSTEMATIC THINKING OF FUTURE BIOLOGY TEACHERS

Abstract: Systems thinking is an important component of the intellectual and professional development of a specialist. The systematic, meta-subject nature of biology allows us to consider this subject as a means of integrative-modular training and development of future teachers, in connection with which the search for adequate pedagogical means to ensure the optimization of the system approach is actualized.

Key words: systematization, integration, students, biology, modular-integrative approach, adaptation, connections, factors levels.

Language: Russian

Citation: Mardonov, Sh., Mustafakulova, D., & Ismatullaev, O. (2021). Scientific and pedagogical prerequisites for the formation of systematic thinking of future biology teachers. *ISJ Theoretical & Applied Science*, 11 (103), 355-358.

Soi: <http://s-o-i.org/1.1/TAS-11-103-27> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.27>

Scopus ASCC: 3304.

НАУЧНО-ПЕДАГОГИЧЕСКИЕ ПРЕДПОСЫЛКИ ФОРМИРОВАНИЯ СИСТЕМНОГО МЫШЛЕНИЯ БУДУЩИХ УЧИТЕЛЕЙ БИОЛОГИИ

Аннотация: системное мышление является важной составляющей частью интеллектуального и профессионального развития специалиста. Системный, метапредметный характер биологии позволяет рассматривать данный предмет как средство интегративно-модульного обучения и развития будущих учителей, в связи с чем актуализируется поиск адекватных педагогических средств обеспечения оптимизации системного подхода.

Ключевые слова: систематизация, интеграция, студенты, биология, модульно-интегративный подход, адаптация, связи, факторы уровни.

Введение

Указ Президента Республики Узбекистан «Об утверждении Концепции развития системы высшего образования Республики Узбекистан на период до 2030 года» от 8 октября 2019 года № УП-5847 направлен на дальнейшее

совершенствование образовательного процесса, учебных планов и программ высшего образования на основе широкого использования новейших педагогических технологий и методов обучения, качественное обновление и внедрение современных форм организации научно-

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

образовательного процесса в целях неуклонного повышения уровня и качества профессионального мастерства педагогических кадров[1].

Важнейшей образовательной задачей высшей школы сегодня является подготовка личности, адекватно отвечающей требованиям эпохи новых информационных и педагогических технологий, важнейшей функцией которых является поиск, присвоение, анализ, обработка и систематизация информации. В новой информационной и социально-экономической среде выпускникам вузов предстоит адаптироваться к стремительному изменению количества и качества жизненно необходимой информации, психологически быть готовыми к любой смене профессиональной деятельности, к изменениям содержания и условий труда, которые будут динамично и постоянно изменяться.

Непрерывно нарастающий информационный поток углубляет дифференциацию получаемых знаний, порождая все новые дисциплины. Приобретая "предметную" сумму знаний, будущие учителя испытывают трудности в целостном восприятии окружающего мира, в решении многофункциональных задач, с которыми им приходится сталкиваться в жизни, в педагогической работе, моделировании процессов и систем окружающей действительности. Это создает трудности послевузовской адаптации как в получении профессионального образования, так и в дальнейшем процессе профессионального совершенствования деятельности. Решение данной проблемы видится в обращении к межпредметным связям, бинарным занятиям, интегрированным курсам и другим средствам.

Узбекскими учеными М. Нишанбаевой, Ф. Рабимовой, Э.О. Турдыкуловым ведутся исследования преподавания в школе и вузе на основе системной взаимосвязи биологии и экологии [2,3,4]. Такой выбор не случаен, так как биология как учебный предмет располагает научно разработанным системным организованным (упорядоченным) аппаратом классификации.

Сегодня системный подход позволяет выделить уровни структурной организации материи. В биологии такими уровнями являются органические макромолекулы, клетки, ткани, органы, системы органов, организмы, популяции, биоценозы и биосфера в целом. Каждый уровень изучается соответствующими науками в составе биологии. В тоже время, системы разных уровней взаимосвязаны и не могут быть поняты в отдельности. Системный подход – это способ организации наших действий, который охватывает любой род деятельности, выявляя закономерности и взаимосвязи с целью их более эффективного использования. [8]

Согласно Берталанфи организм как система обладает следующими признаками: целостность, т.е. такой высокий уровень организованности, при котором свойства системы не сводятся к сумме свойств элементов. Открытость, т.е. интенсивный обмен веществом, энергией, информацией между системой и внешней средой. Динамичность, т.е. постоянное обновление элементов системы, при сохранении общего равновесия и устойчивой структуры. Активность, т.е. существенное преобразование внешней среды. Эквифинальность, т.е. способность приходить к одному и тому же результату разными путями, из разных начальных состояний[5,8].

Принципиально новый подход в решении проблемы формирования системного мышления студентов открывают современные педагогические и информационные технологии, которые, проникая в систему образования становятся активными компонентами процесса обучения, и, трансформируя традиционные принципы дидактики, изменяют структуру, организацию, формы и методы обучения. Предмет биологии может стать проводником идей и образовательных возможностей, приобщая обучающихся к интегративным, общенаучным идеям, понятиям, подходам, методам, которого могли бы качественно изменить основу мышления выпускников, ориентированную на научно обоснованную интеграцию необходимой информации.

Учитывая все выше сказанное, можно сделать о том, что в настоящее время сформировалось противоречие образовательного процесса, состоящее в том, что, с одной стороны, нарастающая дифференциация дисциплин порождает трудности послевузовской адаптации выпускников, а с другой стороны, в процессе обучения практически не используется интегративный потенциал курса биологии, отсутствует практический опыт всестороннего использования его метапредметности.

Решением указанного противоречия может стать идея формирования инновационного мышления обучающихся при обработке потока предметной информации. Поиск практических путей формирования нового мышления побуждает обратить внимание на понятие "интегративный стиль мышления". Интегративный стиль мышления, в основе которого лежат системные, информационные, кибернетические и другие интернаучные подходы, идеи, понятия, методы исследования явлений природы и общественной жизни, доминирующие в науке в эпоху НИТ в философских работах получил обобщенное название - системный стиль мышления [6].

Системность мышления – это такое сочетание словесно-логического и визуального

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

видов мышления, при котором особо акцентируется его направленность на поиск, обнаружение и изучение многочисленных и разноуровневых связей и соотношений различных объектов и их признаков друг с другом.

При этом особую ценность представляет обнаружение связей между объектами и явлениями, которые на первый взгляд достаточно далеки друг от друга по смыслу и содержанию (например, клеточно-тканевой и популяционно-биогеоценотический уровни; микроскопические бактерии, водоросли, грибы и крупномерные представители флоры и фауны; естественный процесс биологической эволюции преобразующая природу деятельность человека). Системное мышление, с одной стороны, позволяет вскрыть эти реально существующие связи, а с другой – само формируется и совершенствуется в процессе изучения и упорядочивания этих связей [7].

Развитие таких качеств мышления, как системность, глубина, диалектичность, проблемность является важной психолого-педагогической задачей. К сожалению, современная организация преподавания биологии в вузах не обеспечивает в массовом масштабе гарантированного формирования такого мышления. Вместе с тем возможности предметного содержания именно биологии (которое является по своей сути одновременно и системным и диалектическим) имеет богатые потенции для такого формирования.

Для обеспечения гарантированного развития системности мышления необходимо сочетание как минимум двух факторов:

- наличие выраженной системности в самом предмете усвоения;
- специальная организация учебного процесса по актуализации акцентуации и менно этого системного содержания и его усвоения.

Анализ содержания учебной программы курса, которая предполагает постепенное помодульное и потемное формирование системности мышления.

Ориентация вузовского образования на компетентностный подход предполагает усиление его практической направленности путем изменения традиционной методики обучения в сторону увеличения количества практических работ.

Модульные программы обязательно должны отражать набор компетенций, формируемых при изучении конкретной дисциплины. И преподаватели, и студенты должны иметь четкое представление об общих (базовых, ключевых,

общекультурных) и профессиональных (специальных) компетенциях.

Уникальность модульного обучения заключается в его комплексном, синтетическом характере, объединившим в себе различные технологии, виды и формы обучения.

Модульное обучение, основанное на компетенциях, ориентировано на результат - комплексное освоение обучающимися знаний, умений, отношений и опыта, позволяющих осуществлять трудовую деятельность по конкретной профессии в соответствии с требованиями рынка труда.

Ориентация на модульно-компетентностный подход дает основание для выделения в качестве критериев подготовленности учителей биологии наиболее значимых компетенций, имеющих комплексный характер и потому дающие возможность достижения наиболее достоверного представления об уровне профессионализма студентов - ценностно-смысловую, учебно-познавательную, интегративную, техническую, коммуникативную.

Использование модульной технологии обучения позволяет превратить процесс преподавания в своего рода реальный трудовой процесс по специальности с гарантированным результатом - достижением четко определенного уровня компетентности специалиста.

На основании проведенного анализа, количественных показателей уровня сформированности системного мышления студентов базовых вузов был сделан вывод о необходимости следующих педагогических мер по совершенствованию процесса изучения биологии и других специальных дисциплин:

- нацелить студентов на активный самостоятельный поиск;
- интересы личности увязывать с проблемами биологической науки;
- создать на занятиях условия для самостоятельной аналитико-синтетической деятельности;
- связать теоретические положения изучаемых предметов с профессионально- и личностно-созидательной деятельностью;
- побуждать студентов к критическому разбору и самостоятельному анализу.

Вышеизложенные положения трансформируются в актуальную научную проблему: определение педагогических условий использования современных педагогических технологий в способы формирования системного мышления будущих учителей-биологов.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

References:

- (n.d.). *Ukaz Prezidenta Respubliki Uzbekistan «Ob utverzhdenii Konceptii razvitija sistemy vysshego obrazovaniya Respubliki Uzbekistan na period do 2030 goda» ot 8 oktjabrja 2019 goda № UP-5847.*
- Nishanbaeva, M.G. (2001). *Povyshenie jeffektivnosti jekologicheskogo obrazovaniya i vospitanija pri izuchenii shkol'nogo kursa biologii (na predmet botaniki i biologii): Avtoref. kand. ped. nauk. (p.21).* Tashkent: UzNIIPN.
- Rabbimova, F. (2012). Podgotovka budushhih uchitelej biologii k poznaniu uchashhimisja jestetiki rodnoj prirody. *Aktual'nye problemy sovremennoj nauki, №3, pp. 75-77.*
- Turdikulov, Je.O. (2003). *Jekologiktar bijahakida: umumij urta talim makta bukituv chiva ukuvchilar uchun. (p.22).* Toshkent: Uz PF ITI.
- (1968). *Obshhaja teorija sistem: osnovy, razvitie, primenenie = General System theory: Foundations, Development, Applications, 1st ed, (p.289).* N. Y.: George Braziller, Inc..
- Popov, V.B. (2006). *Komp`uternye proekty kak sredstvo sistematizacii iobobshhenija znanij. Praga. Chehija. V nauchno-metodicheskom sbornike tezisov i dokladov. V Mezhdunarodnaja konferencija - vystavka. "Informacionnye tehnologii v obrazovanii". (p.68).* Moscow.
- Zaika, E.V. (1990). *Kak nauchit'sja uchit'sja legko. Metodicheskie rekomendacii po psihigigiene i razvitiu poznavatel'nyh processov. (p.51).* Har'kov: HGU.
- Sokolik, A.I. (n.d.). *Vvedenie v sistemnuu biologiu.* Retrieved from http://www.bio.bsu.by/fbr/files/02_SB.pdf
- Pavlinov, I. Ja. (2006). *Sistematika sovremennyh mlekopitaushhih, 2-e izd, (p.9, p.297).* Moscow: Izd-vo Mosk. un-ta.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 09.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Zamira Dawletmuratova

Karakalpak State University named after Berdak
The assistant-teacher, the department of the Karakalpak linguistics
z.dawletmuratova@mail.ru

COMBINED KINSHIP TERMS

Abstract: In this article the types of words, their forming methods are discussed. The affixation is one of the most productive methods in the Karakalpak language. This method plays the main role in adding new words to the vocabulary of the language. The issue of compound words was one of the least studied issues in Karakalpak linguistics. Most of the kinship terms in the Karakalpak language are compound terms. They are formed as a result of attaching, pairing and combining of terms.

Key words: combined words; pair words, compound words, kinship terms, word attachment methods, language history, lexicology, terminology.

Language: English

Citation: Dawletmuratova, Z. (2021). Combined kinship terms. *ISJ Theoretical & Applied Science*, 11 (103), 359-361.

Soi: <http://s-o-i.org/1.1/TAS-11-103-28> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.28>

Scopus ASCC: 1203.

Introduction

In the Karakalpak language, affixation is one of the most productive methods. This method plays the main role in adding new words to the vocabulary of the language.

There are many word forming affixes in the Karakalpak literary language. However, not all of them are involved in the creation of new words. For example, in the Karakalpak language there are no affixed terms among the kinship terms.

Until recently, the issue of compound words was one of the least studied issues in Karakalpak linguistics. In recent years, research on this issue has intensified. This issue is being studied not only in the grammar of the Karakalpak language, but also in special works overall [1,50-54].

Compound words in the Karakalpak language were considered to be syntactically formed in the pre-1970s [2,170; 3,48; 4,17] and morphologically-syntactically in the post-1980s [5,22]. A. Bekbergenov in his work used the notion that compound words are formed by adding a word [6,45]. Later, this name became constant in the language.

In the later grammar of the Karakalpak language it's given that compound words are formed by the method of word addition and the main structural types of compound words are given: 1) combined words; 2)

pair words; 3) repetitive words; 4) compound words; 5) abbreviated words [7,21-26]. Compound words are currently being studied in this structural way.

Complete and correct solution of the problem of compound words in the Karakalpak language is of great importance not only theoretically, but also in practice. This is because in Karakalpak, as in a number of other languages, compound words have a significant place in terms of number. Especially in recent years, as a result of the introduction of scientific and technical advances into our lives and the development of agriculture, many words (or terms) have been absorbed into our literary language, have been assimilated to the spoken language and enriched it.

From the outside, the components in the kinship terms formed by the method of adding a word seem to be similar to them, as if they have signs of the word combination. But compound kinship terms differ from the word combinations. They are compound words formed by the method of adding a word by material side. The components that formed the kinship terms created by this method are semantically, grammatically and intonationally combined and become a lexical integrity [6,45-46].

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Most of the kinship terms in the Karakalpak language are compound terms. They are formed as a result of attaching, pairing and combining of terms.

Combined words make up a large part of compound words. The components of combined words are already attached and have the property of stability. They appear to explain some composite and new meaning. Combined words are initially used as a syntactically free word combination, and over time, the words in them become stable and form a combined word.

As many researchers have shown, in the development of society, in the fields of science, technology, culture, industry, agriculture, there are more compound words than single words to describe any new and compound concept.

A combined word is made up of several words and has a broad meaning. If its components, like the components of word attachments, are separated from each other and formed in the form of separate words, but in essence they are formed by uniting in a stable form. When words are connected with each other and formed a term, their components are used in their literal sense, and as a result of the combination of components, a semantic meaning of term emerges. Examples: murindik ata (baptized father), murindik ene (baptized mother), murindik bala (baptized son), kuyew bala (son-in-law), jiyen kiz (niece), kempir apa (grandmother). Examples: Ulim: Yakshi, kuyew balama aytaman (Son: Ok, I'll tell my son-in-law) (T.Kaipbergenov). – Kempir apa, seni maman nege bizlerdey kishkene kiz etip tuwmagan (Grandmother, why didn't your mother give birth to you as a little girl like us) (G. Esemuratova).

The components of combined kinship terms come from word attachments are made of noun. About this S.N. Muratov says: "Lexical word combinations are formed from the constant attachment of two or more words and in most cases serve as a term" [8,98]. Thus, the composition of combined terms formed from the combination of words has a stable character. The terms of the combined kinship are mainly derived from the words that are attached in the ratio of attribute – apposition: kempir apa (grandmother), kuda bala (brother of bride), o'gey sheshe (stepmother) and so on. Combined kinship terms are formed as a result of the combination of two terms denoting kinship: kaynaga (brother-in-law), mirzaga (little brother-in-law) and so on.

Pair kinship terms are formed from the pairing of two terms, which means kinship, and its components are used in their own form. The components of a pair terms are semantically combined and have a broad and complex meaning: ata –ana (parents), ake-sheshe (father-mother), abisin-ajin (sister-in-law), bala-shaga (wife-children), kiz-kelinshek (girl-bride) and so on.

With the development of language, a comprehensive study of its lexical composition remains one of the most important issues of

linguistics. This is because it is difficult to imagine the basis of the lexical structure of the Karakalpak language today without different terminological systems. Therefore, special attention is paid to the special study of the vocabulary of the Karakalpak language. A lot of work has been done on this [9, 30]. The study of terminology will continue to be important. This is because there are changes in social, political and cultural life. These changes are first of all reflected in the vocabulary of the language. In other words, the vocabulary can be considered as a mirror of the language. Changes in public life are basis to the development of vocabulary, it is constantly replenished with new words, the meanings of some words in them are expanded, and words are assimilated to name new concepts from other languages. Therefore, this situation requires a comprehensive scientific study of the vocabulary.

While the vocabulary of the Karakalpak language is an entire system, a number of lexical layers that need to be studied as part of that entire system are waiting to be resolved. Some scientific works provide general information about the terms of kinship [10, 78-84]. Kinship terms have a certain place in the vocabulary of any language and they are constantly changing in the course of their historical development. Kinship terms are old words. Their ancient system is preserved in many Turkic languages [11,11-81].

This means that, as mentioned above, human names are associated with various symbols, appearances, events, etc. can be set in a related way. One such feature is color. It is difficult for the whole of humanity to imagine the world without colors. Through the colors we feel the beauty of nature, the beauty of the confession. The colors we are talking about are very important, even in the composition of human names. The study of the origin of a particular person's name, the identification of their differences, the study of semantics and etymology - anthroponyms reflect not only the historical, but also the national-cultural differences as a linguistic unit. "The differences of national onomastics are due not only to the fact that they belong to a particular national language, but also to the national culture in which national onymy is formed." Therefore, there is a need to look for information on the national identity of the anthroponym in the national culture of the people.

The main reason for this is that in the process of giving name to babies, people first of all paid attention to the appearance of the baby. Finally, the names of the people who came up with the words to express the color can be considered as the oldest anthroponyms. However, the words that express color not only mean color in the composition of anthroponyms, but also mean allegorical meanings.

In modern linguistics, and in recent studies, in the development of society in linguoculturology, there have been opinions that symbols have been gradually

Impact Factor:

ISRA (India)	= 6.317	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 1.582	PIHII (Russia)	= 3.939	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 9.035	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

and steadily raised to the level of stereotypes as a result of their constant use. Among such stereotypes, colors can be seen. Every nation's ability to understand colors, to illuminate them, to symbolize them, has its own peculiarities. In Karakalpak folklore, the anthroponyms derived from the lexeme "white" ("aq") can be described as follows. The lexeme "white" is the most important lexeme that illuminates these nouns. The white color is considered to be a principle that confirms the life associated with the life, a symbol of purity. The white lexeme is a direct value in describing the appearance and, at the same time, in distinguishing the characteristics of the child.

To study the kinship terms makes particular interest. This is because, by studying them, first of all, it is possible for people to use the terms of kinship correctly; secondly, valuable information related to the history of the language is obtained. Thus, one of the most important tasks of Karakalpak linguistics is the study of kinship terms used for thousands of years on the basis of Karakalpak language materials, the comparative analysis them with the materials of other Turkic languages and their linguistic evaluation. Linguistic study of this invaluable wealth of our people allows us to gain a deeper understanding of many issues of lexicology, terminology and the history of language.

References:

1. Bekbergenov, A. (1979). *Karakalpak tilinde sozlerdin zhasaliwi*. –Nukus.
2. (1999). *Karakalpak tilindegi kospa sozlerdin klassifikatsiyasi. Karakalpak tilinin maseleleri. Ilimiy makalalar*. (pp.50-54). Nukus.
3. Baskakov, N.A. (1952). *Karakalpakskiy yazik. Fonetika I morfologiya* (chasti rechi I slovoobrazovanie). (p.170). Moscow. V. II. Part 1.
4. Kidirbaev, A. (1961). *Hazirgi karakalpak tilindegi atlik sozler*. (p.48). Nukus.
5. (1974). *Hazirgi karakalpak tili. Morfologiya*. (p.17). Nukus.
6. (1981). *Hazirgi karakalpak tili. Morphologiya*. (p.22). Nukus.
7. Bekbergenov, A. (1979). *Karakalpak tilinde sozlerdin zhasaliwi*. -Nukus, 1979, -p.45.
8. (1994). *Hazirgi karakalpak adebiy tilinin grammatikasi. Soz zhasaliw ham morfologiya*. (pp.21-26). Nukus.
9. Muratov, S.N. (1961). *Ustoychiveye slovosochetaniya v tyurkskikh yazikakh*. (p.98). Moscow.
10. Karimxodjaev, Sh. (1970). *Voprosy izucheniya terminov zemledeliya v karakalpakskom yazyke: Abst. dis. PhD. philol. sc.* -Tashkent.
11. Begzhanov, T. (1971). *Karakalpak tili dialektologiyasinin maselelerinen*. (pp.78-84). Nukus: Karakalpakstan.
12. Pokrovskaya, L.A. (1961). *Terminy rodstva v tyurkskikh yazikakh. Istoricheskoe razvitie leksiki tyurkskikh yazikov*. (pp.11-81). Moscow.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 09.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Konisbay Abilovich Yusupov

Karakalpak State University

Docent of the Department of Karakalpak literature,

Doctor of Pedagogical sciences

SCIENTIFIC AND METHODOLOGICAL BASES OF TEACHING THE KARAKALPAK LITERATURE

Abstract: Improving the scientific and methodological foundations of teaching Karakalpak literature at academic lyceums and the principles of compiling textbooks, improving methodological issues using problematic, monographic, review texts based on the materials presented in the Karakalpak literary program, lecture classes and teaching methods. He mechanism of using interactive methods in modern lessons has been improved; it has been strengthened by teacher motivation based on the needs of teachers, using effective problem-solving situations in teaching Karakalpak literature and activating the communicative process.

Key words: The process of the lesson, training, literary conference, activity of the club, extra classes, character, creative work.

Language: Russian

Citation: Yusupov, K. A. (2021). Scientific and methodological bases of teaching the Karakalpak literature. *ISJ Theoretical & Applied Science*, 11 (103), 362-371.

Soi: <http://s-o-i.org/1.1/TAS-11-103-29> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.29>

Scopus ASCC: 1208.

НАУЧНО-МЕТОДИЧЕСКИХ ОСНОВЫ ПРЕПОДАВАНИЯ КАРАКАЛПАКСКОЙ ЛИТЕРАТУРЫ

Аннотация: Совершенствование научно-методических основ преподавания каракалпакской литературы в академических лицеях и принципов составления учебников, улучшением методологических вопросов использования проблемных, монографических, обзорных текстов на основе материалов, представленных в каракалпакской литературной программе, методов лекционных занятий и методики преподавания. Усовершенствованы механизм использования интерактивных методов в современных уроках усилен мотивацией учителей на основе потребностей учителей, использованием эффективных решений проблемных ситуаций при обучении каракалпакской литературе и активацией коммуникативного процесса.

Ключевые слова: Процесс урока, обучение, художественная конференция, деятельность кружка, внеаудиторное занятие, образ, творчество.

Введение

В процессе глобализации народов мира учебно-воспитательные проблемы имеют особое значение. “Образование - основная движущая сила прогресса и важная деятельность, ведущая к достижению целей стабильного развития” [1] - такое определение даёт новая концепция образования до 2030 года, принятая международными организациями и развитыми странами мира. Для предоставления качественного образования, улучшения получения образования и совершенствования

методов оценки результатов усвоения эффективно используются виртуальные образовательные технологии, открытые образовательные ресурсы, образовательные технологии, системы управления образованием. Исходя из поставленных задач, совершенствуется технология обучения каракалпакской литературы в академических лицеях, анализируется информация учащихся на уроках литературы на основе инновационных подходов.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Степень изученности проблемы.

Где уделено внимание на такие методические проблемы, как формы преподавания каракалпакской литературы и учебные программы по преподаванию каракалпакской литературы в академических лицеях. От всех учителей требуется правовая организация учебно-воспитательного процесса, творческое отношение к каждому проведенному занятию. Для того чтобы составить учебный план, литературные программы, стандарты образования согласно требованиям закона, было определено главным направлением исследования достижение совершенствования результатов и качества образования. По применению инновационных технологий при преподавании проведены исследования такими учеными как С.Д. Якушева [2], М.Е. Бершадский [3], В.П. Беспалько [4], С.Я. Бобоскин [5], М.В. Кларин [6], В.И. Боголюбов [7], В.Л. Голиш [8] и другие.

Цель исследования состоит в разработке теоретических, эстетических методических основ методики преподавания каракалпакской литературы в академических лицеях, как научная система и совершенствование путей использования их в педагогической практике.

Задачи исследования:

выявление и совершенствование научно-теоретических, художественно-эстетических, педагогических, практических и методических аспектов методики преподавания каракалпакской литературы в академических лицеях;

определение содержания методики преподавания каракалпакской литературы, совершенствование методики создания учебных планов и уроков по каракалпакской литературе для академических лицеев;

выявление инновационных технологий обучения в обучении каракалпакской литературе, методов использования современных технологий, дающих хорошие результаты на практике;

умение использовать интерактивные методы в обучении литературе, разработать рекомендаций по предметным программам и планами уроков в соответствии с требованиями государственных образовательных стандартов;

выявление научно-методических барьеров и дидактических методов отбора произведений искусства, представленных в программе каракалпакской литературы, обучение теоретическим концепциям и привитие в сознание учащихся идеи национальной беспристрастности;

изучение научно-методических аспектов внеклассной работы по каракалпакской литературе в академических лицеях, усовершенствование методики ведения

литературных кружков, конференций, а также развить способность мыслить самостоятельно.

Объектом исследования является процесс преподавания каракалпакской литературы в академических лицеях Республики Каракалпакстан.

Предмет исследования - повышение эффективности преподавания каракалпакской литературы в академических лицеях, выявление новых форм и методов литературного обучения, содержания, формы, методов и средств развития знаний учащихся на уроках литературы.

Методы исследования. В процессе исследования использованы следующие методы: обобщение, сравнение, анализ и синтез, наблюдение, интервью, педагогические научные эксперименты и тесты, педагогический и дидактический анализ.

Основная часть

В академических лицеях изучаются основные понятия по методике преподавания каракалпакской литературы, связь программ с предметами, принципы преподавания, организация и планирование занятий, интерактивные методы, разбор художественных произведений, изучение творчества писателей, проведение работ внеурочных занятий. Важно изучить сравнительным путем точки зрения ученых по актуальным проблемам преподавания литературы, обозначить развитие направления методико-теоретических мнений.

Учитывая возрастные и психологические особенности учеников по включенным материалам в программу по каракалпакской литературе, необходимо ознакомить учащихся с лучшими образцами каракалпакской литературы, литературы родственных народов и мировой литературы, воспитать чувство любви к Родине в сердцах молодежи, национальное чувство, также пробуждение чувства уважения к национальным ценностям и способность выразить свое мнение путем изучения поэтических особенностей художественных произведений. Также необходимо учесть, что включенные материалы в программу по литературе являются отборными литературными произведениями, и поэтому необходимо учитывать своеобразие языка, психологические и педагогические требования учеников.

Разбор художественных произведений и требования к ним, обсуждение текста, типы разбора и методы будут изучены по ходу занятий по программе, предназначенной для академических лицеев. Путем разбора художественных произведений ученикам объясняется воспитательно-нравственные, эстетические, духовные задачи воспитания, что каждый народ силен своей высокой культурой и

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

духовностью. Данные материалы программы будут изучены с помощью новых видов занятий: семинар, игра, соревнование, тест, конференция и дискуссия. От учителей потребуются педагогические и методические способности во время преподавания каракалпакской литературы. Каждое занятие по литературе должно быть проведено в связи с философией, языкознанием, литературоведением, историей, эстетикой, педагогикой и психологией.

Уделено внимание на особенности использования методов педагогической технологии на различных видах занятий по каракалпакской литературе в академических лицах: конференция, урок по проверке знаний и желаний учеников, смешанные, объединенные и новые образовательные уроки, уделено внимание на взаимоотношение учителя и ученика, на необходимость изменения их задач, на педагогические технологии, высказав мнения по поводу технологических особенностей интерактивного метода, уделено внимание на использование таких интерактивных методов во время занятий по каракалпакской литературе, как «мозговой штурм», кластер, «стратегия углов», трехэтапное интервью, «круглый стол», метод зиг-зага, инсерт и т.п. методы, способы и игры. Кроме них изучены цель и принципы преподавания при разборе художественных произведений, научный разбор, дидактический разбор и проблемы использования этих видов разбора на практике.

Урок – это основная форма преподавания. По этой проблеме известные методисты Я.Скалова [9], М.Н. Скаткин [10], А.Омаров [11], О.Ю. Богданова [12], Я.З. Резь [13], Н.Г. Тараносова Г.Н [14], и др. высказали свои мнения. Профессор К.Юлдошев дает теоретическую характеристику и сведения о таких видах занятий, как дискуссия, путешествие, соревнование, семинар [15]. Высказанные мнения нужно еще больше усовершенствовать с методической точки зрения. Таким образом, эти мнения касаются школ и преподавания литературы. В нашем академическом лице на основе преподавания литературы, посчитали нужным уделить внимание на 2 проблемы. Во первых, нужно изучить требования к уроку по преподаванию каракалпакской литературы и формы их организации. Во вторых, был основной целью изучение исследованных методов в преподавании каракалпакской литературы.

В процессе организации учебных занятий в качестве основного вида необходимо обозначить задачи и проблемы преподавания. Подобно этому, при преподавании каракалпакской литературы, чтобы занятие было качественным и результативным, нужно сохранить следующие методические требования:

-учебник каракалпакской литературы, предназначенные для учеников, должен соответствовать государственному образовательному стандарту и программе и обеспечить учеников системой знаний;

-точное определение цели и задач, их методических проблем в соответствии с государственным образовательным стандартом и программой преподавания;

-необходимость сохранения образовательной, воспитательной и развивающей цели и их единства при преподавании каракалпакской литературы;

-необходимость рассмотрения воспитания учеников в духе почитания общечеловеческих и национальных ценностей, внедрения в их сознание национальную идею и идею национальной независимости в ходе преподавания каракалпакской литературы;

-связав прошлое народа с настоящим днем путем преподавания каракалпакской литературы, нужно сформировать в сознании учеников чувства гордости за свою Родину и народ [16].

Также, во время занятий необходимо иметь индивидуальный подход с каждым учеником, необходимо вести индивидуальную работу со способными, талантливыми и слабоуспеваемыми учениками, необходимо прививать привычку самостоятельной работы, самостоятельно добывать знание, необходимо развивать сознание и способность учеников.

Преподавание каракалпакской литературы с помощью новых образовательных уроков, конференции, диспута считается самой важной методической задачей. Из них мы посчитали нужным остановиться на методике проведения конференции. Методисты разумно определили цель и задачи проведения конференции: «Урок-конференция является одним из видов проведения занятия на уроке и вне урока. Материалы урока-конференции изучаем для следующих целей. Необходимо иметь понятие о проводимом материале, глубокое знание научно-теоретических материалов, развитие представления об изучаемой теме». По этому виду урока мало методических мнений. Поэтому уделено внимание на содержание урока-конференции и способа их преподавания, на проблему и особенность преподавания материалов урока-конференции, приведенных в программе.

Проведение уроков увеличивают интерес к уроку с помощью различных видов занятий, данных в программе, знание, теоретическое понятие и желание. Также даны методические предложения и мнения по проведению урока обмен мнениями, цель и задачи урока, организацию урока, по способам оценки знаний учеников на уроке. Урок обмен мнениями

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

развивает способность мышления, мнения учеников и повышает интерес к литературе.

В общеобразовательных школах и академических лицеях есть особенности использования форм уроков. Во-первых, в школах во время урока будет целесообразным использование таких видов урока, как смешанный урок, объединенный урок, ознакомление учеников с новым образовательным уроком, урок-введение, урок-повторение, урок-игра. Во вторых, нужно взять под руководство возрастные особенности школьников, время каждого урока, принципы составления материалов от легкого уровня к сложному. В третьих, в академических лицеях такие виды уроков, как конференция, урок обмена мнениями, лекция, семинар, повышают способность мышления учеников и интерес к уроку. В результате в сознании учеников формируются духовное, философское, эстетическое чувство и чувство красоты [17]. Использование современных педагогических технологий в преподавании каракалпакской литературы в академических лицеях исследованы проблемы использования инновационных технологий при преподавании каракалпакской литературы, внедрение инновации в образовательную систему Республики Узбекистан, задачи, основанные на освоении методов, дающих быстрый и хороший результат на практике, о новых методах и путей образования, соответствующих мировым достижениям.

По вопросу применения инновационных технологий при преподавании проведены исследования такими учеными как С.Д. Якушева [18], Я.В. Коровин [19], А.И. Галаган, А.К. Гараева и другие. Внедрение таких новшеств в учебный процесс необходимо и важно. Углубления теоретических мыслей по каракалпакской литературе, точные выводы и из-за практической значимости этих мыслей, руководство педагогическими принципами при воспитании молодого поколения являются причиной востребованности современных методов преподавания. Также применение интерактивных технологий при преподавании каракалпакской литературы имеют своеобразные особенности.

Применение интерактивных методов при преподавании каракалпакской литературы дают следующие результаты:

- возрастает интерес учеников к предмету литературы и занятиям;
- прочно осваивается учебный материал;
- развивается способность глубокого и свободного мышления;
- формируется культура налаживания отношений;

-ученики активно участвуют в учебной деятельности;

-создается удобная психологическая среда для учебы;

Использование интерактивных методов в преподавании каракалпакской литературы имеет свои цели и задачи. Нужно постоянно обращать внимание вопросам правил и регламента интерактивных технологий, используемые на занятиях по каракалпакской литературе. Кроме того, ученикам дается свобода слова и объясняется необходимость уважать друг друга и этика общения. Полезно будет при разделении в группы дать ученикам право выбора, а потом применить принцип случайного выбора. По результатам интерактивных технологий на занятиях по каракалпакской литературе преподаватель-литератур должен подвести итоги и выставить участникам групп соответствующие оценки.

Высказываются мнения по методическим вопросам использования проблемных, монографических, подвижных лекций при преподавании каракалпакской литературы в академических лицеях, притом методы организации лекционных занятий реализуется на основе материалов, данных в программе технологий преподавания. С помощью использования интерактивных технологий при преподавании по материалу, данному в программе по каракалпакской литературе в сознании учеников формируется чувство гуманизма, любви к родине и взаимоуважения.

В своем труде «Основы применения педагогических технологий» узбекские методисты У.К.Толипов и М.Усмонбоева подробно остановились на вопросе применения данных методов на занятиях в школах и выразили свое мнение. Необходимо перечислить отличия используемых методов в академических лицеях от методов, проводимых в школах. Во-первых, не будет целесообразным применение в обоих случаях одинаковые методы. Здесь нужно учитывать применение методов с учетом возрастных особенностей учеников. Во-вторых, необходимо классифицировать методы по особенностям и способам применения. С методологической стороны целесообразно применять на занятиях по каракалпакской литературе в академических лицеях такие методы как «ПОПС», «Кластер», «Диаграмма Вена», «Инсерт», «Мозговой штурм», «ЗХУ», «Черный ящик», «Зиг-заг». Однако данные методы составляют трудности для учащихся школ.

Методы преподавания в академических лицеях литературного материала по программе об анализе художественного произведения и о его задачах и роли приведены филологические и методологические мнения из научных трудов

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

известных ученых как З.Я.Резь, А.Б.Есин, Б.Г.Бобылев, М.Г.Костава, Г.Н.Тараносова и других.

К.Юлдошевы, специально исследовавшие методику преподавания узбекской литературы, рассматривая данный вопрос с методологической точки зрения, в своем труде «Основы художественного анализа» разделили задачи литературы на 5 групп и дали теоретические определения каждой из них: а) мыслительно-коммуникативная; б) оценочно-аксиологическая; в) воспитательная-поведенческая; г) развлекательная-гедонистическая; д) познавательная – гносеологическая.

В методике преподавания каракалпакской литературы существует своеобразный порядок анализа художественного произведения и работы над ним, по цели, задаче. Требуется изучение произведения каждого писателя в связи своеобразными особенностями.

Анализируя художественные произведения по данной программе литературы ученики могут ознакомиться с его идейным содержанием, образами и жанровыми качествами. Наряду с этим нужно руководствоваться главными принципами анализа художественного произведения. Изучая тему, идею художественного произведения. Описанные в нем события и то, к какому периоду они относятся, необходимо обратить внимание на взгляд писателя на современность.

Необходимо изучать прозаические произведения в академических лицеях соответственно количеству отведенных часов по программе, а также обучать учащихся по прозаическим произведениям по следующим требованиям:

-воспитать учащихся по прозаическим произведениям и развивать у них научное мышление;

-изучать характерные признаки периода, описанного в прозаическом произведении;

-изучать особенности и важность главных образов в прозаических произведениях;

В ходе анализа художественного произведения у учеников формируются такие знания и навыки как освоение формы и содержания произведения, определение жанровой разновидности и главной проблематики поставленной в произведении, знание его сюжета, композиционных элементов, мир образов, художественных и идейных особенностей. Изучение учащимися таких произведений, данных в программе, как «Арал кушагында» О.Айжанова, «Ақдэрья» К. Султанова, «Әмиўдэрья бойында» Ж.Аймурзаева, «Дастан о каракалпаках» Т. Кайыпбергенова, и романов Ш. Сейитова являются одним из необходимых методических задач. Поэтому необходимо знать содержание и идейную направленность произведения,

определить его сюжет, понимать и полностью раскрыть характеры героев, определить портреты героев, знать пейзажные и художественные детали, определить образный мир художественного произведения, раскрыть композицию произведения.

В результате этого, во- первых ,учащиеся академических лицеев получают широкое представление о художественной произведениях, об их эстетическом уровне, о глубине событий в них, эпическом изложении и их условиях, исторических периодах и образах и психологии героев. Во- вторых, учащиеся будут стараться читать прозаические произведения определенных авторов. Образы героев будут оказывать положительное влияние на воспитание молодого поколения. В- третьих, в ходе анализа прозаических произведений по программе каракалпакской литературы у учащихся развиваются представления о сюжете, образах героев произведения. В результате у них возрастает интерес к литературе и обогащается словарный запас, а также развиваются знания народной истории и повысится их культурно-эстетический уровень.

Пути и способы освоения биографического материала достаточно полно освещены в работах методистов В.Г.Маранцмана, И.Е.Каплана, Л.А.Шеймана, и др. «Названные методисты считают, что средством освоения биографического материала является привлечение документального и художественно-документального материала является привлечение документального и художественно-документального материала: литературных мемуаров, переписки и дневников писателя, произведений художественно-биографического жанра». Изучение биографии и творчества писателя при преподавании каракалпакской литературы в академических лицеях является одним из важных методологических задач.

По программе по каракалпакской литературе дано много материала по биографии писателя. Целесообразно изучать биографии писателей по программе с методологической точки зрения последовательно.

Изучение биографии каждого писателя рассматривается как представление и введение его произведений. Изучая биографию писателей, учащиеся берут пример с поступкам со сделанных ими дел во благо родины и народа, с их гуманизма и смелости. Поэтому нужно учитывать воспитательные стороны при изучении биографии писателей. При объяснении биографии писателя, соответственно на каждом занятии дается информация о важных моментах жизни писателя, об истинах того времени, о его отношении к среде, где он родился и вырос.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

При изучении биографии писателя в академических лицеях принимается во внимание такие методологические вопросы как краткое определение из биографии писателя, а также рассказы и очерки о биографии. При этом занимает особое место изучение жизненного и творческого путей писателя, раскрытие идейно-художественного качества произведений и историко – литературных задач.

Результативность и качество проведения занятия, связанного с биографией писателя, в первую очередь, зависит от подготовленности преподавателя, также от сбора материала, составления хорошего плана проведения занятия. Поэтому преподавателю необходимо пользоваться трудами литераторов о жизни и творчестве писателей.

При преподавании творчества писателей на занятиях каракалпакской литературы у учеников появляется интерес к тому, что каждый писатель таинственен по- своему, своим внутренним миром, что психологические переживания в творческом процессе совсем не схожи. Об этом также говорится в трудах таких литераторов как З.Кабдолова, К.Юлдошева, К.Мамбетова, К.Камалова, А.Пахратдинова, К.Оразымбетова и других. Например, литератор З.Кабдолов приводит много таинственных и интересных фактов, связанных с письмами писателей во время творческой деятельности. Если обратить на них внимание, говорится, что известный писатель Эрнест Хемингуэй не мог писать не стоя у трибуны, а некоторые писали лежа, а еще некоторые писали уходя из дома, в путешествие или в творческие дома, а некоторые не могли творить кроме как за письменным столом в своем доме. Интересно рассказывать о подобных вещах ученикам, интерес зависит от опыта преподавателя. В результате ученики, изучая писателей по программе каракалпакской литературы, формируют в своем сознании чувство патриотизма, гуманизма, честности, трудолюбия, совести, преодоления трудностей и у них возрастает интерес к художественной литературе.

Научно-методические задачи изучения каракалпакской литературы в академических лицеях путем проведения внеурочных работ, проведено методическое исследование по организации и содержанию внеурочных занятий по каракалпакской литературе. В ней отмечается необходимость изучения некоторых литературных материалов во внеурочных работах в силу того, что изучение материала на занятиях по программе недостаточно. По этому вопросу указаны мнения о методической важности способов организации и проведения внеурочных занятий для улучшения знаний и навыков учащихся в методических исследованиях и трудах

Т.Р.Ниязматова, М.Миркосимова, Сафо Очил, А.Абдуразоккова, И.Калмиковой.

В преподавании каракалпакской литературы в академических лицеях нельзя ограничиваться лишь материалами учебной программы. Поэтому от преподавателей требуется объяснить некоторые материалы программы в виде внеурочных работы. Были напечатаны несколько методических пособий по методике преподавания каракалпакской литературы. В этих исследованиях не была рассмотрена методика преподавания внеурочных работы, лишь в труде А.Пахратдинова «Методика преподавания каракалпакской литературы» преподавание внеклассных занятий проводится путём разделения их на группы. По этому вопросу высказали своё мнение исследователи по методике преподавания узбекской литературы С.Долимов, К.Юлдошев, Б.Тухлиев и другие.

Ученики академических лицеев в ходе изучения внеурочных работы должны знать следующее: виды, содержание, сюжеты, образы и народность устного народного творчества; основные жанры художественной литературы, изобразительные средства, знать и уметь анализировать тему и идею изучаемого произведения; формирование умения свободно выражать мысли в устной и письменной форме по материалам внеурочных работы, передавать впечатления об изученных произведениях. Необходимо изучить писательское мастерство, уметь различать индивидуальность автора, раскрыть характер литературного героя в произведениях поэтов, изученных в процессе внеаудиторных занятий.

Программные материалы целесообразно изучать в виде внеурочных работы По этой проблеме имеются некоторые полезные советы методистов. Нужно обратить особое внимание на внеаудиторные занятия, в повышении и усовершенствовании уровня знания учеников и в воспитании их в духе патриотизма. Внеаудиторных работы по литературе помогают усовершенствовать знания, полученные в ходе классных занятий и развивать мировоззрение учеников. Внеурочных работы по каракалпакской литературе делятся на несколько видов по цели и содержанию.

Одна из важнейших педагогических и методических задач в академических лицеях – это широкое изучение внеурочных работ. Если не будет уделяться должное внимание внеаудиторным работам, кружкам, литературным вечерам и экскурсиям то это может оказать негативное влияние на уровень и качество знания учеников. Во время проведения в академических лицеях внеаудиторных занятий по каракалпакской литературе надо учитывать возраст учеников. Для первокурсников целесообразно проводить уроки

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

выразительного чтения, а также кружки и путешествия. А для второкурсников проведение литературной конференции по материалам газет и журналов, путешествий, литературных вечеров, соответствующих методическим требованиям. Необходимо учитывать духовные чувства, интересы каждого ученика.

Одной из первых методических задач при проведении внеурочных работы по каракалпакской литературе в академических лицеях является определение интересов учащихся. После изучения умений и интересов учеников переходим к правильной организации внеаудиторных работ. Для того, чтобы заинтересовать учеников необходимо учитывать их интересы. Для проведения и правильной организации внеаудиторных работ учитель должно хорошо знать картотеку лицейской библиотеки. Учитывая интересы учеников, а также для осуществления этих интересов надо проводить соревнования, конкурсы на основе материалов некоторых произведений и тем.

В академических лицеях литературное знание и воспитание имеет особое место. Ученикам, материалы, данные в программе, художественные произведения преподаются путём организации литературной конференции, вечеров, деятельностью литературных кружков, альбомов и журналов, стенгазет, литературных путешествий и взаимосвязи с библиотекой. Одной из важных методических задач в проведении таких работ является ознакомление учеников образцами каракалпакской, узбекской, туркменской, казахской и мировой литературы. При помощи этого развивать у учеников высокие человеческие чувства, такие как любовь к родине, человечность, доброта, милосердие, а также развитие их духовного мира в соответствии с национальными идеями. На основе обучения учеников средствами выразительности художественных произведений необходимо развить у них критическое мышление. В ходе внеаудиторных работ ученики осваивают жанры и различия между жанрами.

При проведении внеурочных работ необходимо привить умение различать основные моменты произведения, составлять план и на основе этого плана писать короткое сочинение. А также от учеников требуется умение различать в художественных произведениях образы, связывать эти образы с действительностью, выразительно читать стихотворения, правильно использовать толковые словари, выражать свои мысли на события изображённые в произведениях, которые они прочитали самостоятельно, дать характеристику героям.

Путём проведения литературных конференции и вечеров, внеурочных работы ученики должны изучить материалы устного

народного творчества, историю раннего периода каракалпакской литературы, каракалпакскую литературу XVIII, XIX, XX веков и литературу периода независимости. Таким образом, требуется обучить учеников пересказу содержания текста своими словами, выражению отношения к героям, а также дать понять ученикам, что художественная литература является оружием духовного развития человека. Во внеаудиторных занятиях ученики должны применять на практике полученные знания по литературе.

В академических лицеях кружковые работы проводятся на основе программы каракалпакской литературы. Учащимся академического лицея, планы кружковых работ необходимо составлять на основе тематического плана. А также соответствует цели если учитывать возрастные особенности и их интересы к чтению художественной литературы.

Кружковые работы по каракалпакской литературе можно разделить и другим путём: 1.Эпический кружок; 2.Лирический кружок; 3.Драматический кружок; 4.Кружковые работы по классам:

- А) литературный кружок
- Б) кружок художественного чтения
- В) кружок работы по фольклору
- Г) кружок по истории каракалпакской литературы
- Д) кружок каракалпакской литературы в годы независимости

Кружковые работы отличаются от занятий, проводимых в классе. В кружке ученики знакомятся с интересующей их информацией. Суть работы должна быть интересной и живой. Обычно, участники кружка собираются с различных классов. Ученики объединяются в кружок чтобы, изучить материалы, которые даны в годовом плане. Участники эпического кружка должны знать сказки, рассказы, романы и повести. Темы, изучаемые в эпических и лирических кружках должны быть сложными. Ученики должны уметь устно и письменно выразить свои мысли и задавать вопросы друг другу по пройденным материалам.

В работу эпического кружка включаются темы из всемирной и каракалпакской литературы. Например: будет правильным составление тематического плана по произведениям Л.Н.Толстого, Ч.Айтматова, Р.Гамзатова, М.Айбека, А.Дабылова, Т.Жумамуратова, И.Юсупова, Т.Кайыпбергенова, К.Каримова, Н.Торешова. Руководитель кружка кроме умения выбора литературных произведений и теоретического объяснения должен иметь сведения по творческим работам.

Кружковые работы должны проводиться 1 раз или 2 раза в месяц. За этот период участники кружка успеют хорошо подготовиться к своим

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

темам. Кружки должны проводиться не в обычных классах, а в литературных классах лицея, в чистых и им же украшенных классах. Потому что портреты писателей, мудрые слова, иллюстрации книг вдохновляют учеников. Тематика рабочего плана должна быть содержательной и действенной. Общий смысл работы связано с воспитательным значением и художественностью выбранной темы. Тематический план работы составляется на основе рабочего плана эпического и лирического кружков. Составленный на 1 год рабочий план кружка разделяется на темы. И поэтому надо выбирать интересные и смысловые темы.

Литературная конференция должна проводиться по двум направлениям: 1) Посвященная художественным произведениям писателей и поэтов. 2) В научном направлении на основе художественных произведений. Литературная конференция проводится вместе с учениками лицея. Потому что они изучают литературную деятельность А.Дабылова, Ж.Аймурзаева, Т.Жумамуратова, С.Хожаниязова, И.Юсупова, Т.Кайыпбергенова, А.Пахратдинова, К.Камалова, К.Мамбетова, Т.Кабулова, Т.Матмуратова, М.Кайыпова, К.Каримова, Х.Даўлетназарова, О.Сатбаева.

Конференция проводится на основе одного произведения, творческого пути поэта. Основной целью конференции является глубокое ознакомлению с жизнью и творческой деятельностью поэта, увеличение интереса к известному произведению, развитие их воспитательных чувств. Конференция даёт возможность ученикам работать над одной темой, обсуждать произведения и образы. Учитель литературы этим самым оказывает влияние на совершенствование знаний по литературе.

Есть ещё один неизученный вид внеурочных работы, который увеличивает интерес учеников к литературе вне урока – это выставочный уголок. Цель выставочного уголка: развитие любви к каракалпакской литературе учащихся лицея. Учитель даёт задание ученикам прочитать произведения, составить альбом по одному произведению, нарисовать разные рисунки по смыслу произведения. Упех этой работы зависит от умений и ответственности учителя. Способы проведения выставочного уголка зависят от умений учителя. И поэтому организация выставочного уголка по каракалпакской литературе даёт ученикам многое полезного.

Объясняется цель и задачи выставочного уголка. Учащиеся в течение одного и двух месяцев составляют альбомы, буклеты и рисунки по заданным темам. Подводятся итоги по выполненным ими работам. Самые лучшие работы оцениваются учителем, и ставятся оценки. И так важность выставочного уголка состоит в

следующем: в пользу углубленного изучения и понимания материалов учебной программы, в обязанности дополнительного чтения произведении поэта и писателя, составление альбомов и рисунков пробуждает любовь к литературе, Выполненные задания учениками служат наглядным пособием для учителя.

Выставочный уголок не только увеличивает любовь учеников к литературе, но и служит для оформления литературного класса наглядными пособиями. И поэтому учителя должны проводить эти работы почаще во внеурочное время.

В академических лицеях самыми важными являются стенгазета и журналы. Стенгазета - это творческий центр, в котором оповещаются новости из жизни лицея, литературные новости, разные статьи учеников. Стенгазета по смыслу и в соответствии с задачами должна издаваться по двум направлениям: В первом, связанное с историческими датами («День независимости», «Новый год», «День Конституции»). Во втором, освещаются темы из жизни лицея, о здоровье, о чистоте, о порядке, рассказы, сатирические и юмористические стихи. В итоге развивается любовь учеников к литературе. Литературный журнал необходимо выпускать один раз в два месяца. Журнал организует учитель литературы вместе с участниками кружка в следующем порядке: Поэзия; 2.Проза; 3.Драма; 4.Критические статьи. Задача журнала повысить творческую способность учеников.

В академических лицеях, чтобы издавать литературные журналы и стенгазеты учителям литературы ставятся следующие задачи: руководство в составлении журналов и стенгазет; помогать в составлении журналов и стенгазет, авторам статей, выбрать тему; быть внимательным к стилистическим и орфографическим ошибкам журналов и стенгазет.

Учитель каракалпакской литературы активно участвует в издании журналов и стенгазет, и советуется с издателями. Литературные стенгазеты и журналы оповещают важные события.

Выставочные уголки по каракалпакской литературе развивают эстетические чувства учеников, а стенгазета и журналы развивают способности письменного мышления и творчества.

В академических лицеях благодаря проведению литературных конференций по каракалпакской литературе, литературных вечеров, внеклассного художественного чтения, кружковой деятельности, выставочных уголков, выпуска художественных журналов и стенгазет, литературных путешествий развиваются кругозор учащихся, развивается любовь к родине, скромность, высокие человеческие и эстетические чувства. Внеурочных работы развиваются у

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

учащихся речь, культуру речи, обогащают их по литературе и развивают способности критического мышления.

Определены результаты экспериментально-практических работ по каракалпакской литературе, проведенных в академических лицеях следующим образом: изучены возможности организации экспериментальных работ, их анализ, а также рассмотрены показатели уровня эффективности их результатов. Организация экспериментальных работ на основе определенного порядка и программы обеспечила их эффективность. В программе экспериментальных работ определены критерии, показатели и методы развития результаты изучения художественной литературы в ходе урока. Экспериментальные работы были осуществлены на обосновывающем и констатирующем этапах, в них приняли участие учащиеся академических лицеев.

Из полученных результатов видно, что критерий оценки эффективности обучения больше единицы и критерий оценки уровня усвоения больше нуля. Из этого видно, что усвоение в экспериментальной группе выше, чем усвоение в контрольной группе. Результаты исследования подтверждают, что экспериментальные работы по определению уровня развития социальной активности учащихся академических лицеев учреждений, являются эффективными.

Анализ теории исследования, а также итоги экспериментальных работ позволили нам сделать следующие выводы: актуальное состояние обучения учащихся в академических лицеев определяется не только спецификой лицея. Но и современными требованиями к обучению учащихся, что предполагает пересмотр методов обучения и воспитания

Повышение уровня знаний предполагает соответствующую организацию не только классных, но и внеклассных занятий. С этой целью мы первым делом определили цель и задачи занятия, содержание материала и сделали анализ специальной литературы, которая позволила выделить комплекс внеклассных занятий, как дискуссия. Литературное путешествие, страноведческий кружок, самостоятельная работа

и т.д., а также комплекс современных интерактивных методов, которых можно применить во время проведения внеурочных занятий, как мозговой штурм, кластер, инсерт, трехэтажное интервью, круглый стол, зигзаг, деловая игра, диспут, дискуссия.

Использование новых педтехнологий в обучении способствует созданию благоприятных условий для собеседников и облегчает усвоение внеурочного материала. В связи с чем были изучены цель и задачи занятия, содержание материала. Основу формирования воспитательных задач составляет вопрос эстетического и духовного воспитания учащихся на основе переоценки ценностей, традиций народа, его культуры и духовного богатства, которые требуют системного подхода, позволяющего выделить способы и приемы интеллектуальных работ. Такими поэтапно формируемыми формами работ являются повышение умения и навыка учащихся, решать проблемные задачи по литературе, разбор конкретных ситуаций.

Заключение

Как показало исследование, положительные результаты в реализации поставленных задач были достигнуты при выделении коммуникативных навыков и умений и в связи с чем, было обращено особое внимание на способы повышения культуры устной и письменной речи, на разновидности сочинений и на критерии оценок. При этом важнейшим резервом развития и совершенствования умений и навыков разбора художественного текста оставались организация систематической и целенаправленной работы над совершенствованием формирования ключевых понятий и умений, как построения определения по заданной форме, оценивание и удерживание собственной позиций, оценивание и фиксирование позиции собеседника, достижение общего вывода и т.д. Перспективы исследования мыслятся в создании серии специальных учебных средств, формирующих языковую и коммуникативную компетенцию и воспитательных задач.

References:

1. (n.d.). *Incheon Declaration / Education 2030: Towards inclusive and equitable quality education and lifelong learning for all.* (p.6-7). Retrieved from

<http://unesdoc.unesco.org/images/0023/002338/233813m.pdf>

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

2. Yakusheva, S.D. (2012). *Osnovi pedagogicheskogo masterstva*. (p. 256). Moskva: Akademiya.
3. Bershadskiy, M.E. (2002). V kakix znacheniyax ispolzuetsya ponyatie «texnologiya» v pedagogicheskoy literature? *Shkolnie texnologii*, №1, pp.3-18.
4. Bepalko, V.P. (1989). *Slagaemie pedagogicheskoy texnologii*. (p.188). Moscow: Pedagogika.
5. Boboskin, S.Ya. (2009). *Innovatsionnyy proekt: Metodi otbora i instrumenti analiza riskov*. Uchebnoe posobie. (p. 240). Moscow: Delo ANX.
6. Klarin, M.V. (1989). *Pedagogicheskaya texnologiya v uchebnom protsess*. (p. 253). Moscow: Znaniya.
7. Bogolyubov, V.I. (2004). Evolyutsiya pedagogicheskix texnologiy. *Shkolnie texnologii*, № 4, pp. 12-21.
8. Golish, L.V. (2005). *Texnologii obucheniya na lektsiyax i seminarax*. Uchebnoe posobie. Pod obshey redaktsiey akademika S.S. Gulyamova. – Tashkent: TGEU.
9. Skalova, Ya. (1989). *Metodologiya i metodi pedagogicheskogo issledovaniya*. (p. 224). Moscow: Pedagogika.
10. Skatkin, M. N. (1986). *Metodologiya i metodika pedagogicheskix issledovaniy*. (p. 150). Moscow: Pedagogika.
11. Omarov, A. (1989). *Iz istorii sozdaniya uchebnikov i uchebno-metodicheskoy literaturi kazaxskoy shkoli*. Avtoref. dis. kand.ped.nauk. (p.24). Almata.
12. Bogdanova, O.Yu., Leonova, S.A., & Chertova, V.F. (2002). *Metodika prepodavaniya literaturi*. (p.162). Moscow: Pedagogika.
13. Rez, Z.Ya. (1970). *Metodika izucheniya liriki v shkole*. Dis. d-ra ped. nauk. (p.384). L..
14. Taranosova, G.N. (1991). *Analiz xudojestvennogo teksta v sisteme podgotovki uchitelya yazika i literaturi v natsionalnoy shkole*. Diss.dokt. ped.nauk. – Moscow.
15. Yuldoshev K., Madaev, O., & Abdurazokov, A. (1994). *Metodika prepodavaniya literaturi*. (p. 87). Tashkent.
16. Yusupov, K.A. (2018). *Metodika prepodavaniya karakalpakskoy literaturi*. (p. 48). Tashkent: Sano-standart.
17. Yusupov, K.A. (2019). *Metodika prepodavaniya karakalpakskoy literaturi v akademicheskix litseyax*. (monografiya). (p.18). Nukus. Karakalpakstan.
18. Yakusheva, S.D. (2012). *Osnovi pedagogicheskogo masterstva*. (p. 256). Moskva: Akademiya.
19. Korovin, V. Ya. (1977). *Analiz xudojestvennogo proizvedeniya v kurse literaturi IV-VII klassov*. (p.224). Moscow: Prosveshenie.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 10.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Behzod Tolibov

Navoi state mining institute
PhD, Associate professor
Navoi, Uzbekistan
intelekt16@gmail.com

Abdurashid Hasanov

JSC Almalyk mining and metallurgical combine
DSc, professor, Deputy chief engineer
Almalyk, Uzbekistan

THEORETICAL BASIS AND ANALYSIS OF EXPERIENCES ON STUDYING THE MECHANISMS OF OXIDES FORMATION DURING OXIDATIVE FIRING OF MOLYBDENUM SULFIDES

Abstract: The article deals with the formation of oxidized particles during oxidative roasting of molybdenum sulfide concentrates and cakes, as well as under-oxidized cinders and dust of molybdenum production. In the course of the work, various factors influencing the oxidative roasting process, parameters and requirements for the supplied and discharged material were investigated. The results of the analyzes are summarized and conclusions drawn on their basis.

Key words: multiple hearth furnace, intensive roasting, calcine, sulfides, molybdenum, cake, soda leaching, oxidative roasting, concentrate, desulfurization, oxidation state.

Language: English

Citation: Tolibov, B., & Hasanov, A. (2021). Theoretical basis and analysis of experiences on studying the mechanisms of oxides formation during oxidative firing of molybdenum sulfides. *ISJ Theoretical & Applied Science*, 11 (103), 372-375.

Soi: <http://s-o-i.org/1.1/TAS-11-103-30> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.30>
Scopus ASCC: 1600.

Introduction

An industrial method for extracting molybdenum includes roasting its concentrate, purifying the obtained calcine by a hydrometallurgical method to MoO₃, and reducing trioxide with hydrogen to metal. Although this method is the main method for the production of molybdenum and has been used for a long time in the industry, research on its application to various concentrates, as well as the kinetics and mechanism of roasting, is ongoing. still in short supply [1]. However, as a result of the well-known disadvantages of pyrometallurgical extraction of molybdenum, hydrometallurgical processes are becoming more and more attractive. Among them, nitric acid leaching, pressure oxygen leaching, electrooxidative extraction, sodium chlorate and

hypochlorite leaching, and bioleaching are more popular [2].

Objects and methods of research.

We have studied the kinetics and mechanics of the solid-state reaction between MoS₂ and MoO₃ for the formation of MoO₂ in an atmosphere with a nitrogen content of 450-700°C using untreated samples of molybdenum production, pressed melange samples and pure MoS₂ and MoO₃ dumplings with the contacting side. The results show that for untreated samples, the reaction reaches a maximum conversion of 67.3% at 650°C in 75 minutes, while for compressed samples, the conversion under similar conditions reached 96.1% in 75 minutes, which reflects the effect of physical conditions of both types of experiments on reaction kinetics [3]. The calculated

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

values of the activation energy for the two experimental conditions are coherent with an average value of -44.2 ± 1.9 kJ, which is in the range of reactions in the solid state, controlled by diffusion [4]. For samples with a contacting face above 650°C , the results seem to indicate that molecular diffusion in the solid state and MoO_3 in opposite directions in the newly formed crystal structure of MoO_2 can occur with the established diffusion coefficients of MoS_2 in MoO_2 and MoO_3 in MoO_2 at 650°C to 1.08×10^{-6} and $7.78 \times 10^{-6} \text{ cm}^2/\text{s}$, as well as with constant diffusion coefficients of MoS_2 in MoO_2 and MoO_3 in MoO_2 at 650°C 1.08×10^{-6} and $7.78 \times 10^{-6} \text{ cm}^2/\text{s}$ 973 cde 10^{-5} and $1.13 \times 10^{-5} \text{ cm}^2/\text{s}$, respectively.

Results and discussion.

There are four known molybdenum sulfides: Mo_3S_4 , Mo_2S_3 , MoS_2 and MoS_3 . Sulfide Mo_3S_4 is

formed from aqueous solutions and decomposes at about 120°C to $\text{MoO}_3 \cdot n\text{H}_2\text{O}$ and sulfur. Trisulfide MoS_3 usually contains an excess of sulfur in the form of MoS_3^{+x} , in which $x = 0-0.7$. When heated in an inert atmosphere between 250 and 300°C , it decomposes into MoS_2 and sulfur. Molybdenite (MoS_2) decomposes to Mo_2S_3 and gaseous sulfur in a neutral atmosphere above 1400°C [5]. There are two known molybdenum oxysulfides, MoO_2S and MoS_2 , but they are very unstable and decompose to MoS_2 and oxygen. Several molybdenum oxides have been identified with oxidation states from 2 to 6, most of which are non-stoichiometric, and only two (MoO_2 dioxide and MoO_3 trioxide) are stoichiometric, stable compounds.

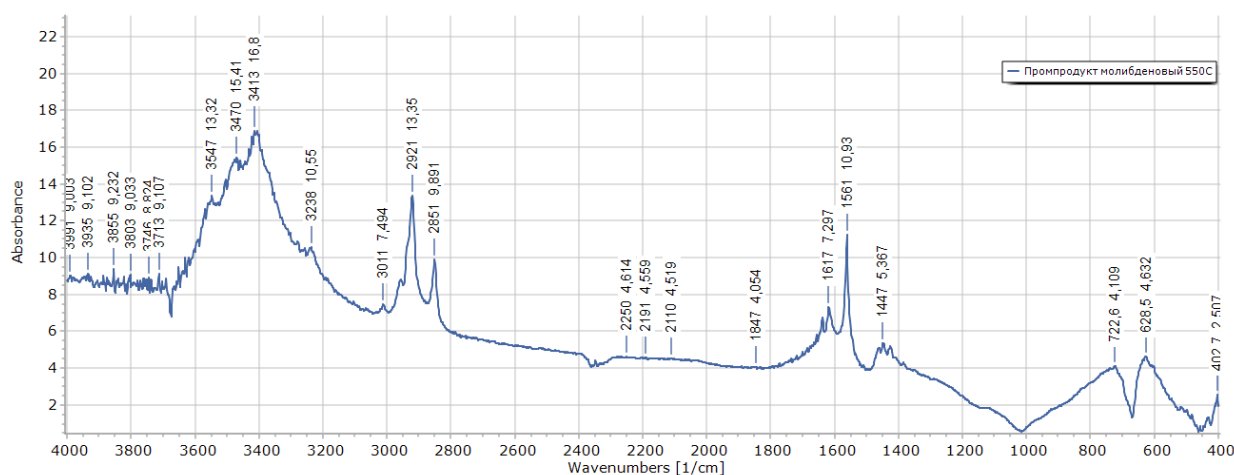


Fig. 1. Results of IR spectroscopy of molybdenum middlings during firing at 550°C .

Some others, such as Mo_5O_{12} , Mo_3O_8 , Mo_2O_5 , Mo_4O_{11} and Mo_9O_{26} , have been found in small amounts in multi-hearth pots and appear to be solid

solutions of MoO_2 and MoO_3 in varying proportions [6-8].

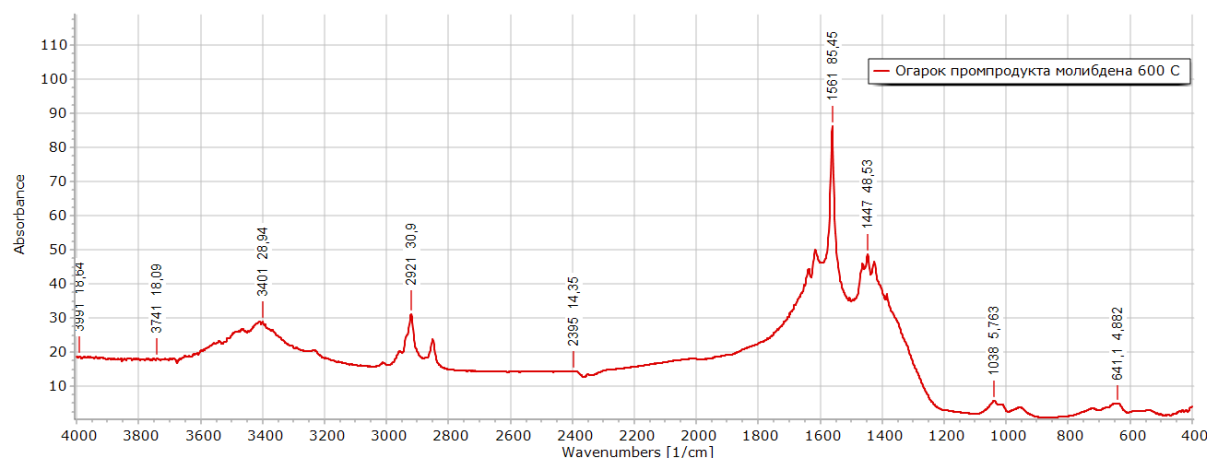


Fig. 2. Results of IR spectroscopy of molybdenum middlings during firing at 600°C .

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

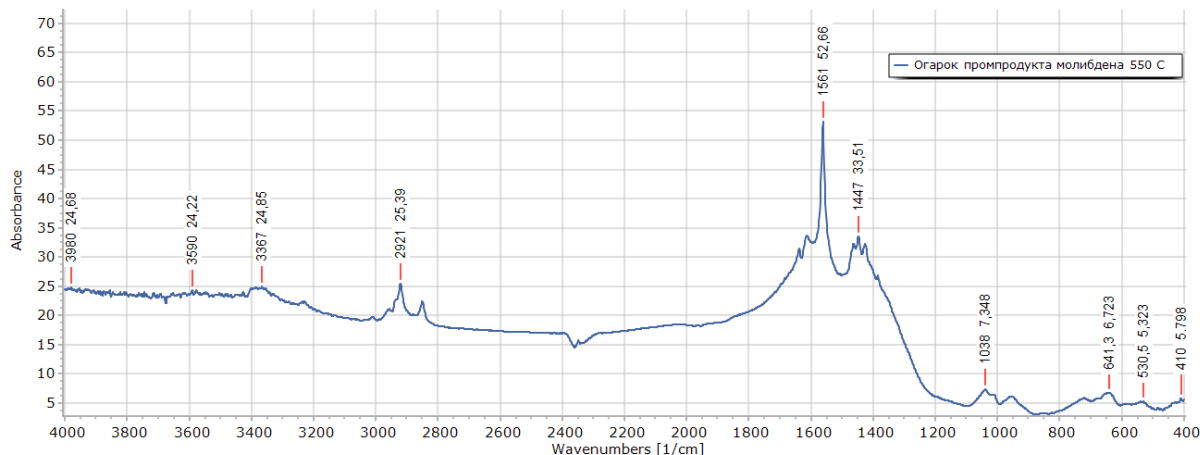


Fig. 3. Results of IR spectroscopy of cinder of molybdenum middlings during roasting at 550°C

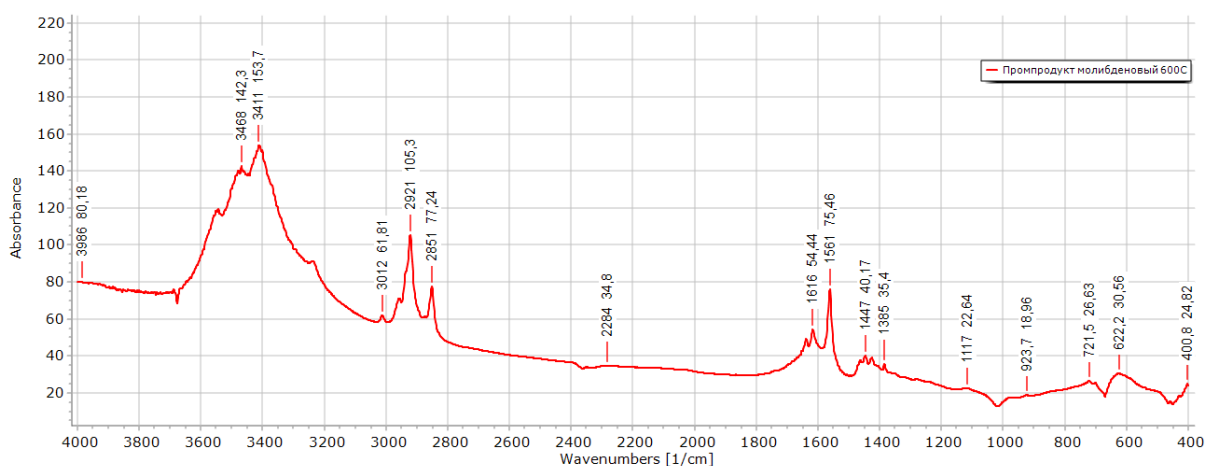


Fig. 4. The results of IR spectroscopy of the cinder of molybdenum middlings during firing at 600°C.

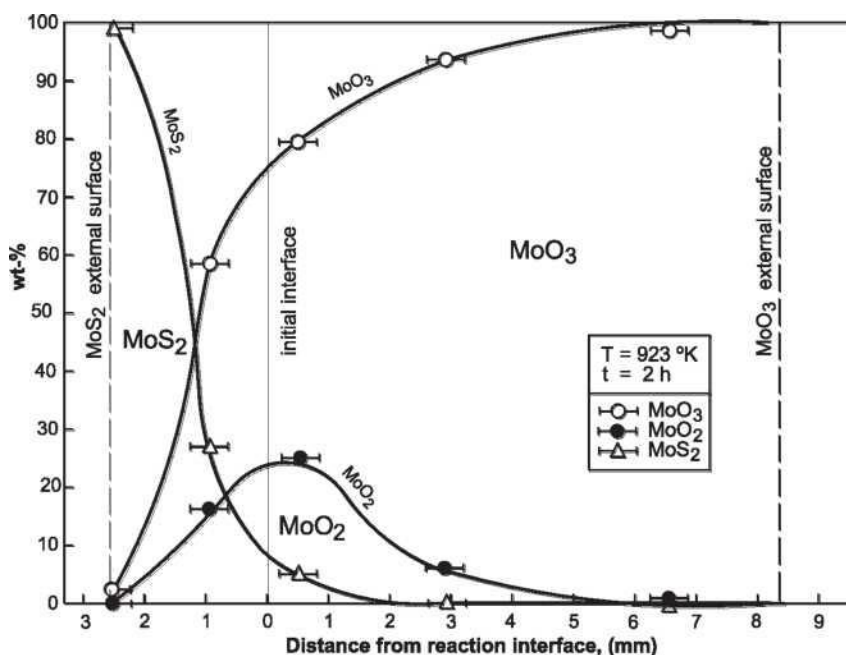


Fig. 5. Concentration profiles of MoO₂, MoS₂ and MoO₃ at 650°C (compressed granules with one contacting surface).

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Conclusion.

The kinetics and mechanism of the solid state reaction between MoS₂ and MoO₃ with the formation of MoO₂ in a nitrogen atmosphere between 450 and 700°C were studied using bulk mixed samples, mixed compressed granules and pure granules of MoS₂ and MoO₃ with a single contacting surface. The results show that for bulk samples the reaction reaches a maximum conversion of 67.3% at 650 °C in 75 min, while for compressed samples the conversion under

similar conditions reaches 96.1%, which indicates the effect of the physical characteristics of both types of experiments on diffusion coefficient of MoS₂ and / or MoO₃ through the newly formed crystalline layer of MoO₂. The calculated activation energies for both experimental conditions agree with an average value of -44.2 ± 1.9 kJ, which is in the range of diffusion-controlled reactions. The literature has not reported any other value for this reaction.

References:

1. Aleksandrov, P., Medvedev, A., Imideev, V., Moskovskikh, D. (2017). *Chemistry and Mechanism of Interaction Between Molybdenite Concentrate and Sodium Chloride When Heated in the Presence of Oxygen. Metallurgical and Materials Transactions*, January 2017. DOI: 10.1007/s11663-016-0889-1
2. Tolibov, B., & Hasanov, A. (2021). Research In The Field Of Intensive Oxidative Roasting Of Molybdenum Sludges. *The American Journal of Applied Sciences*, 3(09), 57–66. <https://doi.org/10.37547/tajas/Volume03Issue09-09>
3. Khasanov, A.S., & Tolibov, B.I. (2018). Firing of molybdenum cakes in a new type of kiln for intensive firing. *Mining bulletin of Uzbekistan*, No. 4 (75), pp.131-135.
4. Selçuk, K., Kağan, B., Ömür, C. O., & Onuralp, Y. (2021). Investigation of Molybdenite Concentrate Roasting in Chamber and Rotary Furnaces. *Mining, Metallurgy & Exploration*, 38:1597–1608.
5. Tolibov, B.I., Khasanov, A.S., & Pirmatov, E.A. (2021). Factors influencing technological indicators in the production of molybdenum. *Universum: tehniicheskie nauki: jelektronnyj nauchnyj zhurnal*, 10(91).
6. Khasanov, A.S., & Tolibov, B.I. (2018). Investigation of the possibility of the process of oxidation of sulfide materials in a furnace for intensive roasting. *Gornyi Zhurnal*, No. 9, pp.85-88.
7. Hasanov, A.S., Tolibov, B.I., & Pirnazarov, F.G. (2019). *Advantages of low-temperature roasting of molybdenum cakes*. International scientific-practical conference on the theme: «International science review of the problems and prospects of modern science and education». (pp.17-18). Boston, USA.
8. Tolibov, B.I., Hasanov, A.S., & Pirnazarov, F.G. (2019). *Molybdenum containing products processing in conditions of SPA RM&RA AMMC*. Proceedings of international conference on Integrated innovative development of Zarafshan region: achievements, challenges and prospects, (pp.139-142). Navoi, 27-28 November 2019.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 10.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Alia Ondasinovna Toleubaeva

KSU named after Berdak

assistant in the department of “Linguistics of English language”

NEWSPAPER TEXT: METAPHOR AS A MEANS OF EXPRESSION

Abstract: *The journalist reflects public life in all the variety of its manifestations. According to the researcher, the type of publication is the form of this or that display. The nature of newspaper text implies communication with the reader and is the result of a complex language game. The journalist builds any text, focusing on the image of the addressee-reader, and this image allows you to select neutral and emotionally colored, literary and vernacular language means, in accordance with the type of speech that is characteristic and understandable to the addressee-reader. In many respects, the choice of language material for publication is also dictated by the fact that the author-journalist seeks to stand out, to pay attention to his texts, to be remembered by the reader with a unique style and unusual ways of presenting the material.*

Key words: *metaphor, media text, public speech, journalism.*

Language: English

Citation: Toleubaeva, A. O. (2021). Newspaper text: metaphor as a means of expression. *ISJ Theoretical & Applied Science*, 11 (103), 376-378.

Soi: <http://s-o-i.org/1.1/TAS-11-103-31> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.31>

Scopus ASCC: 1203.

Introduction

The mass media are the most important factor in the formation of public opinion in modern society, affecting all spheres of its life. A partial synonym for the concept of mass media is the term press, as the most basic, widespread and historically the earliest type of mass media. The media have a significant impact on the culture of society, and the study of the means of lexical expression used in newspaper and magazine texts is especially important. The functional style, corresponding to the language of the press, is the journalistic functional style.

«Language, giving the opportunity to express infinitely many conceivable contents, cannot fulfill this role without interpretation» [1]. Consequently, the modification of a well-known expression is a natural process that is inherent both in expressions fixed in a language and in speech means that are new to it.

Being a special area of professional activity, modern journalism uses a wide range of means of linguistic expression. In newspaper and magazine materials written on the economic theme, traditional methods of journalistic creativity are combined with new, modern ones. The clarity, accessibility and information content of published articles directly depends on how well the author manages to maintain

a balance between scientific and journalistic nature, how accurately he chooses the means speech expressiveness and the surrounding context.

In any media verbal text, along with the norms of universal language, it is also required to follow the norms of literary style, which is a manifestation of it. Within the framework of this method, oral communication is carried out in formal situations. The use of visual aids depends on the characteristics of the press language genre. They help to move away from standardization in a language and make press language more effective [2].

Newspaper-speech standardization has a social communicative and evaluative direction, artistic-speech standardization has an individual-communicative direction. The newspaper relies on a standard that is openly used many times, based on propaganda, evaluation feature and in most cases, emotional impact [2].

Metaphors in the language of print media are an integral and vivid element of the system of speech impact technologies. It is the language of the press that is taken for research, because the metaphor and, in general, the technologies of speech influence are most used and effective precisely in the language of the print media.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIIHQ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

The technologies of speech influence in the press today are so developed that they can really and significantly influence the behavior of the masses, the outcome of elections, the popularity of this or that product, politician or political project. The journalistic model as an independent structure began to form about half a century ago [2]. J. Mistrík names writing, monologue, publicity and conceptualism as the main features of his journalistic style [3]. J. Findra also includes formality, remoteness of the addressee and communicative function in this list [4]. The emergence of journalistic style is also due to the development of the media, which are intermediaries in the transfer of information to the addressee. Thanks to the development of electronic media, a significant part of journalistic texts is oral and dialogical in nature [5].

Here it is necessary to take into account the characteristic features of the journalistic style of the newspaper text. A characteristic feature of journalism is also that it affects not one person, but the masses, society as a whole and its individual social groups. In the journalistic style, the author's individuality is manifested much stronger than in the scientific, official-business style. However, in this case, the author manifests himself not only as a specific person (with his own unique characteristics), but also as a representative of society, an exponent of certain social ideas, interests, etc.

The format of the printed media is also important for the language design of the published materials. Moreover, each edition in one way or another needs the use of means of speech expression.

Among the many tropes used by newspaper journalists, we single out the following, the most common and performing the main functions:

- metaphor and personification - means of lexical expressiveness, built with the involvement of different models, which makes them appropriate in all kinds of economic contexts, where these tropes perform primarily an evaluative and illustrative function;

- epithets included in the text for the purpose of displaying the author's assessment and decorating the text;

- metonymy, in some cases performing an expressive function, stylizing communication with the reader;

- allusion - a figure of speech used both in headings and in the texts of articles, attracting the attention of readers and allowing the author to highlight accents in the text [6].

Metaphor as a term in a newspaper text is designed to convey more accurately the meaning of phenomena, to emphasize a new and important nuance. The newspaper needs it in order to connect the past with the future, old theories with new ones. Among the metaphors in demand in publicistic texts, the researcher identifies the following varieties: linguistic, artistic and scientific metaphors. D. Davidson argues that metaphors mean only that (or no

more), which means the words included in them, taken in their literal meaning. Some authors especially emphasize that metaphor, unlike ordinary word usage, provides insight - it penetrates into the essence of things. But in this case, the metaphor is considered as one of the types of communication, which, like its simpler forms, conveys the truth and lies about the world, although it is recognized that the metaphorical message is unusual, and its meaning is deeper hidden or skillfully veiled [7].

Metaphors in the language of the newspaper are an integral and vivid element of the system of speech impact technologies. It is «the language of the press that is taken for research, because the metaphor and, in general, the technologies of speech impact are most used and effective precisely in the language of the print media» [8]. Of course, the press is not an exclusive area of application of the metaphor - it functions in everyday conversations, and in anecdotes, and in business speech, but according to the number of one-time recipients of one or another type of speech influence of the media (especially television, radio and - more recently - the Internet - editions) leave far behind any other areas of information functioning.

The existence of a scientific, political and economic metaphor in the language of the newspaper can be considered a completely natural phenomenon, since she is responsible for the implementation of the nominative function. Since, «the expressive qualities of such linguistic means are erased or weakened and most often they cannot be considered as the means of expressiveness proper» [10].

The noun «*daftar* - notebook» in newspaper publications on a social topic is important both semantically and expressively, for example, «*temir daftar*» (*iron notebook, iron list - list of people in poverty level*), «*yoshlar daftari*» (*notebook of the youth*), «*ayollar daftari*» (*women notebook*), etc.

A phenomenon, as a direct metaphor, often has an objective nature, i.e. compares the phenomena of the political, economic and social sphere with the usual everyday realities. This technique allows the general reader to better understand the intent of the author of the publication. Direct metaphor often passes into the category of linguistic means devoid of expressiveness. It is also possible to transform such an expression into a terminological metaphor. It depends on the frequency of use and the relevance of a particular expression, especially if this metaphor is easy to understand, reproducible, accurate. Sometimes erased metaphors can turn into speech clichés. For example: «*zangori olov*» (*bluish fire*); «*oq oltin*» (*white gold*); «*qora oltin*» (*black gold*). This occurs when a language medium was used primarily for its expressiveness.

The purpose and format of journalistic creativity are undoubtedly the most important factors that determine the use of certain means of expression in a text. A newspaper article is usually smaller in volume

Impact Factor:

ISRA (India)	= 6.317	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 1.582	ПИИИ (Russia)	= 3.939	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 9.035	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

than a journal article; more often than not, a journalist cannot devote it entirely to his own idea of the issue under consideration.

Thus, the most characteristic expressive and influencing means for journalistic texts, the choice of certain types of metaphors or comparisons depends not only on the genre, but also on the subject matter of a particular text. The traditional division of journalistic texts into genres without taking into account their subject matter does not describe a

significant part of their semantic and stylistic features. Metaphor as a term in a newspaper text is designed to convey more accurately the meaning of phenomena, to emphasize a new and important nuance. The newspaper needs it in order to connect the past with the future, old theories with new ones. Cognition of the unknown is possible only through the well-known, and an adequate linguistic reflection of this new is possible when using well-known words placed in new contexts.

References:

1. Zhinkin, N.I. (1998). *Jazyk - rech` - tvorchestvo*. (p.147). Moscow: Labirint.
2. Teshabaeva, D.M. (n.d.). Press language: text analysis. *ISJ Theoretical & Applied Science*, 12 (92), 288-291.
3. Findra, J. (2004). *Stylistica slovinciny*. (p.232, p.186). Martin:Osveta. ISBN 80-8063-142-5
4. Mistrik, J. (1997). *Stylistika*. 3.vyd. (p.598, p.460). Bratislava: SPN. ISBN 80-08-02529.
5. Findra, J. (2004). *Stylistica slovinciny*. (p.232, p.186) Martin:Osveta. ISBN 80-8063-142-5
6. Nursaitova, D. S. (2015). Osobnosti publicisticheskogo stilja sovremennyh SMI. — Tekst : neposredstvennyj. *Molodoj uchenyj*, № 7 (87), pp. 981-983.
7. Podkina, Jy.V. (2020). *Ispol'zovanie leksicheskikh sredstv vyrazitel'nosti v zhurnalisticheskikh publikacijah na jekonomicheskuiu temu (na materiale massovyh i specializirovannyh izdaniij)*. Dis...kand.filol.nauk. (p.44). Moskva.
8. Djevidson, D. (1990). *Chto oznachaut metafory*. (p.34). Moscow.
9. (n.d.). Retrieved from <https://topref.ru/referat/49605/4.html>
10. Podkina, Jy.V. (2020). *Ispol'zovanie leksicheskikh sredstv vyrazitel'nosti v zhurnalisticheskikh publikacijah na jekonomicheskuiu temu (na materiale massovyh i specializirovannyh izdaniij)*. Dis...kand.filol.nauk. (p.44). Moskva.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal
Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 10.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Sherzod Abduzairovich Kasimov

Termez State University

Associate Professor of the Department of Inorganic and Analytical Chemistry

43 Barkamol Avlod str., Termez, Republic of Uzbekistan, 190111.

sh_kasimov@rambler.ru

Khayit Khudaynazarovich Turaev

Termez State University

Doctor of Chemical Sciences, Professor,

Dean of the Faculty of Chemistry

43 Barkamol Avlod str., Termez, Republic of Uzbekistan, 190111.

hhturaev@rambler.ru

Azizbek Bakhrom ugli Mardonov

Termez State University

student

43 Barkamol Avlod str., Termez, Republic of Uzbekistan, 190111.

THERMOGRAVIMETRIC STUDY OF SORBENT BASED ON COVALENTLY IMMOBILIZED ZINC DITHIOCARBAMATE ON A POLYESTER MATRIX

Abstract: This article investigates the thermogravimetric characteristics of a sorbent based on covalently immobilized zinc dithiocarbamate on a polyester matrix. Based on the results of the obtained experimental data, it was shown that the sorbent is stable up to a temperature of 140 °C. The resulting sorbent is recommended for use in the sorption of copper and zinc ions from solutions of higher temperatures.

Key words: covalently immobilized ligand, zinc dithiocarbamate, polyester matrix, thermogravimetric, thermal stability.

Language: Russian

Citation: Kasimov, Sh. A., Turaev, Kh. Kh., & Mardonov, A. B. (2021). Thermogravimetric study of sorbent based on covalently immobilized zinc dithiocarbamate on a polyester matrix. *ISJ Theoretical & Applied Science*, 11 (103), 379-383.

Soi: <http://s-o-i.org/1.1/TAS-11-103-32> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.32>

Scopus ASCC: 1604.

ТЕРМОГРАВИМЕТРИЧЕСКИЕ ИССЛЕДОВАНИЕ СОРБЕНТА НА ОСНОВЕ КОВАЛЕНТНО ИММОБИЛИЗОВАННОГО ДИТИОКАРБАМАТА ЦИНКА НА ПОЛИЭФИРНОЙ МАТРИЦЕ

Аннотация: В данной статье исследованы термогравиметрические характеристики сорбента на основе ковалентно иммобилизованного дитиокарбамата цинка на полиэфирной матрице. По результатам полученных экспериментальных данных показано, что сорбент стабильный до температуре 140 °C. Полученный сорбент рекомендована для использования при сорбции ионов меди и цинка из растворов более высоких температур.

Ключевые слова: ковалентно иммобилизованный лиганд, дитиокарбамат цинк, полиэфирная матрица, термогравиметрия, термический стабильность.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Введение

Синтез новых ковалентно иммобилизованных лигандов, разделение с их помощью переходных металлов из растворов комплексообразующими сорбционными методами, изучение состава, строения, физико-химических свойств координационных соединений, образующихся в процессе сорбции, является одной из основных задач неорганической химии.

Ранее в литературе показано, что синтезирован комплексообразующий полифункциональный полимерный сорбент на основе поликонденсации мочевины, формальдегида, фосфорной кислоты [1]. Синтезированы иммобилизованные металлокомплексы некоторых d и f элементов с гетарилформазанами [2], определены сорбционные характеристики по ионам Co (II), Cd (II), Ni (II), Cu (II) и Zn (II) на силикагеле с ковалентно-иммобилизованным 1-(2-пиридилазо)-2-нафтолом [3], проведено сорбционно-фотометрическое определение ионов кобальта с помощью иммобилизованного реагента 4-амил-2-нитрозо-1-нафтола [4]. Предложен сорбент для концентрирования лантана из проб воды большого объема. Сорбент устойчив в динамических условиях и основан на сверхсшитом полистироле, модифицированном 1-фенил-3-метил-4-бензоилпиразол-5-оном [5].

Ученые из института экологической безопасности (г. Курск) под руководством Н.Н. Басаргина работали над кислотно-основными и комплексообразующими свойствами хелатных полимерных сорбентов [6], ученые из Уральского федерального университета под руководством Л.К. Неудачиной изучали синтез и физико-химические свойства хелатных сорбентов с функциональными группами N-арил-3-аминопропионовых кислот [7].

В работе [8] сополимер малеинового ангидрида-стирола модифицирован в присутствии 4-амино-2-тиоурацила и формальдегида и получен новый полимерный сорбент с пространственной структурой. Также синтезированы хелатообразующие сорбенты на основе ковалентного закрепления на матрице карбамидформальдегидной смолы: 2-аминопентандиовой кислоты [9], дитизона [10], ортофосфорной кислоты [11]. В статье [12] исследован полученный лиганд, ковалентно закрепленный способом *in situ* O,O-ди-(2-аминоэтил)-дитиофосфата калия на полиэфирной матрице, обладающей комплексообразующими свойствами с катионами d-металлов.

Применение ковалентно иммобилизованных лигандов в полимерных матрицах в процессе

извлечения металлов путем комплексообразования из растворов позволяет селективно извлекать металлы в виде комплексных соединений. Поэтому необходимо провести систематическое исследование свойств полимерных лигандов и образования координационных соединений с металлами.

Цель и методы исследования.

Таким образом, целью данного исследования является определение термической стабильности сорбента на основе ковалентно иммобилизованного дитиокарбамата цинка на полиэфирной матрице.

В работе применялись реактивы марки «ч» и «х.ч.». Растворы использованных реактивов готовились растворением точной навески в известном объеме растворителей. Определяли насыпной вес синтезированного сорбента по ГОСТ 10898.2–84, удельный объем набухшего сорбента по ГОСТ 10898.4–84, статическую обменную ёмкость – ГОСТ 20255.1–89.

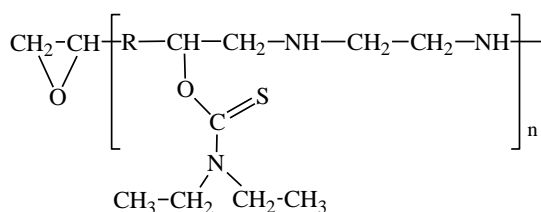
Термоаналитические исследования проводили с использованием синхронного анализатора Netzsch STA 409 PG (Германия), термопары типа K (Low RG Silver) и алюминиевых тиглей. Все измерения проводились в инертной атмосфере азота при скорости потока азота 50 мл / мин. Температурный интервал измерений 25–370 °С, скорость нагрева 5 град / мин. Объем пробы для одного измерения 5-10 мг. Измерительная система откалибрована стандартным набором веществ KNO₃, In, Bi, Sn, Zn.

Синтез сорбента на основе ковалентно иммобилизованного дитиокарбамата цинка на полиэфирной матрице. Как продолжение вышеуказанных исследований для синтеза комплексообразующего сорбента в стакан добавляют 8 г (0,02 моль) эпокисмола (ЭД-20) и 3,62 г (0,01 моль) диэтилдитиокарбамата цинка. После того, с перемешиванием прикапывают 2 мл концентрированный хлоридной кислоты. После интенсивно перемешиванием реакционной смесью в качестве отвердителя добавляют немного этилендиамина 1,2 мл (0,02 моль). В результате образовалась смолистая масса. Полученную смолистую массу вылили в фарфоровую чашу и сушили в сушильном шкафу при 70-80 °С в течение 24 часов. Высушенный полимер растирали в ступке, и низкомолекулярные соединения сначала промывали 5% -ным концентрированным раствором NaOH, а затем несколько раз дистиллированной водой. Полученный продукт состоит из мелких пористых светло-желтых зерен с выходом реакции 88%.

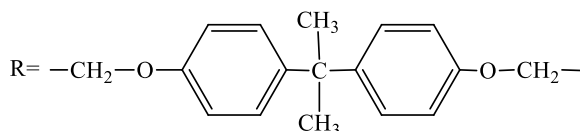
Строения полученного сорбента предлагается следующим образом.

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350



Где,



5 мл аликвотной фракции и разбавляют до 50 мл, затем добавляют несколько капель аммиака до образования аммиачной комплексной окраски. В смесь добавляют индикатор мурексида до образования ярко-желтого раствора, затем

титруют 0,05 н. раствором трилона Б до образования светло-пурпурного цвета. Ионообменная емкость иона меди (II) рассчитывалась по следующей формуле:

$$\text{COE} = \frac{(V_K - V_{II}) \cdot N \cdot V_2}{V_1 \cdot \Gamma} = \frac{(14 - 10) \times 0,05 \times 5}{10 \times 0,03} = 3,3 \text{ mg} - \text{ekv/g}$$

Здесь V_K - объем раствора трилона Б, использованный для титрования контрольного раствора, мл; V_{II} - объем трилона Б, использованный для титрования раствора металла после контакта с полимером, мл; N - нормальность раствора трилона Б; V_1 - общий объем раствора

MeCl_2 , мл; V_2 - аликвота, мл; Γ - анионообменная смола, г. [11].

Изучено влияние мольных соотношений исходных веществ на состав и физико-химические свойства синтезированного комплексообразующего сорбента (табл.1)

Таблица 1. Влияние соотношения первичных компонентов на физико-химические свойства синтезированного хелатообразующего сорбента

Мольные отношения эпоксигомола, диэтилдитиокарбамата цинка и этилендиамина	Выход реакции, %	Статическая обменная способность в 0,1 н растворе, мг-экв / г	
		CuCl_2	ZnCl_2
1:1:1	66	3,1	3,0
2:1:1	77	2,8	3,1
2:1:2	88	3,3	3,5
1:2:2	70	2,7	2,8

Результаты в таблице показывают, что мольное соотношение эпоксигомола, диэтилдитиокарбамата цинка и этилендиамина составляет 2:1:2 для синтеза сорбента с высокой обменной емкостью по отношению к ионам металлов.

Из полученных экспериментальных данных при исследовании термостабильности сорбента и на основании [12] литературных данных по

результатам дериватографического анализа проанализированы различные экзотермические и эндотермические эффекты, наблюдаемые при изменении массы в результате разрушения структуры соединений при нагревании сорбента.

Изучены термогравиметрический (ТГА) и дифференциальный термический анализ (ДТА) полученного сорбента (рис.1).

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

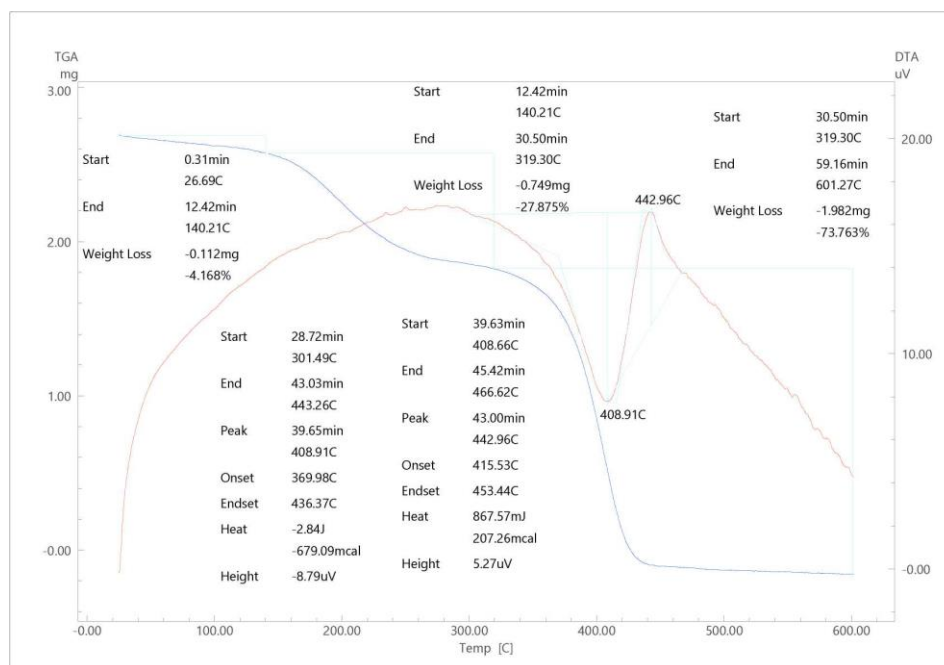


Рисунок 1. Термогравиметрический (ТГА) и дифференциальный термический анализ (ДТА) синтезированного сорбента.

Анализ термогравиметрической кривой сорбента показывает, что кривая ТГА в основном реализуется в 2 интенсивных температурных диапазонах потери массы. 1-интервал потери массы равен температуре 26,7-140,2 °С, 2-интервал потери массы равен температуре 408,6-453,44 °С. Анализ показывает, что в 1-интервале потери массы наблюдается массовая потеря 0,112 мг, т. е. 4,168 %, что связано с эндоэффектным гигроскопическим оттоком воды из сорбента, в 2-интервале потери массы происходит разложение и наблюдается выделение аммиака. Основная величина потери массы в этом диапазоне составляет 1,983 мг или 73,763%. Таким образом, термическая стабильность синтезированного сорбента свидетельствует о его устойчивости до температуры 140 °С.

Выводы.

Таким образом, получен новый комплексообразующий сорбент, на основе эпоксидной смолы, диэтилдитиокарбамата цинка, этилендиамина, обладающий высоким сорбиционным способом к катионами меди и цинка. Полученные результаты показали, что синтезированного хелатообразующего сорбент обладает высокой статической обменной емкостью при молярном соотношении 2: 1: 2 исходных веществ. По результатам термогравиметрического и дифференциального термического анализа рекомендована для использования при сорбции ионов меди и цинка из растворов более высоких температур.

References:

1. Kasimov, Sh. A., Turayev, Kh. Kh., & Dzhililov, A. T. (2018). Issledovaniye protsessa kompleksoobrazovaniya ionov nekotorykh dvukhvalentnykh 3d-metallov sintetirovannym khelatoobrazuyushchim sorbentom. *Universum: khimiya i biologiya*, 3 (45).
2. Pervova, I. G. (2007). *Immobilizovannyye metallokompleksy nekotorykh d i f elementov s getarilformazanami: sintez, stroeniye i svoystva*: dis. Doktora khimicheskikh nauk: 02.00. 02. (p.288). Yekaterinburg.
3. Open'ko, V. V., Konshina, D. N., Temerdashev, Z. A., & Konshin, V. V. (2014). Izucheniye sorbtzii Co (II), Cd (II), Ni (II), Cu (II) i Zn (II) na silikagele s kovalentno-immobilizovannym 1-(2-piridilazo)-2-naftolom. *Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya*, 57(10), 57-61.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
PIHII (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

4. Inatova, M. S., Smanova, Z. A., Nurmukhamadov, ZH., & Gafurov, A. A. (2016). Corbtsionno-fotometricheskoye opredeleniye ionov kobal'ta s pomoshch'yu immobilizovannogo reagenta 4-amil-2-nitrozo-1-naftola. *European research*, 8 (19).
5. Arkhipova, A. A., Tsyisin, G. I. Y., Statkus, M. A., Bol'shov, M. A., Seregina, I. F., & Zolotov, Y. A. (2016). Sorbents with non-covalently immobilized β -diketones for preconcentration of rare earth elements. *Talanta*, 161, 497-502.
6. Basargin, N. N., Oskotskaya, E. R., Yushkova, E. Y., & Rozovskii, Y. G. (2006). Physicochemical properties of complexing para-substituted polystyrene sorbents containing functional amino groups. *Russian Journal of Physical Chemistry*, 80(1), 115-119.
7. Neudachina, L. K., Yatluk, Y. G., Baranova, N. V., Pestov, A. V., Vshivkov, A. A., Plekhanova, A. Y., & Zorina, M. V. (2006). Synthesis and physicochemical properties of chelating sorbents containing functional groups of N-aryl-3-aminopropionic acids. *Russian chemical bulletin*, 55(5), 828-834.
8. Aliyeva, R. A., et al. (2016) Determination of lead (II) in liver corpse of a slaughtered cattle with preconcentration on a chelating sorbent. *American Journal of Analytical Chemistry*. (7 (08). 617. <https://doi.org/10.4236/ajac.2016.78057>
9. Ermuratova, N. A., Kasimov, Sh. A., & Turayev, Kh. Kh. (2021). Sintez i issledovaniye khelatoobrazuyushchego sorbenta na osnove karbamida, formal'degida i 2-aminopentandiovoy kisloty. *Universum: tekhnicheskoye nauki*, 4-4 (85), 71-73.
10. Chorlieva, N., Ermuratova, N., Turaev, Kh., & Kasimov, Sh. (2021). Synthesis and research of chelate forming sorbent based on carbamide, formaldehyde, ditizone. *Chemistry and chemical engineering*, 2020(4).
11. Kasimov, S. A., Turayev, Kh. Kh., Dzhililov, A. T., Choriyeva, N. B., & Amonova, N. D. (2019). IK spektroskopicheskiye issledovaniye i kvantovo-khimicheskoye kharakteristiki azot i fosforsoderzhashchego polimernogo liganda. *Universum: khimiya i biologiya*, 6 (60).
12. Kasimov, Sh.A., Turaev, H.Kh., Jalilov, A.T., Alikulov, R.V., Mukumova, G.Zh. (2021). IR spectroscopic and thermal characteristics of the covalent immobilized sulfur-containing ligand and its coordination compounds with copper (II). *ISJ Theoretical & Applied Science*, 09 (101) 234-238. <https://dx.doi.org/10.15863/TAS.2021.09.101.15>

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 10.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



Abdimumin Mardikobilovich Karimov

Navoi State Pedagogical Institute
Candidate of physico – mathematical sciences, associate
Professor of the department of methods of teaching
Physics and Astronomy, Republic of Uzbekistan.
karimovabdimumin_1959@bk.ru



Oynisa Abdimuminovna Karimova

Navoi State Pedagogical Institute
Lecturer department of methods of
teaching Physics and Astronomy,
Republic of Uzbekistan.
oynisa_1986@bk.ru

THE ROLE OF MODERN EDUCATIONAL TECHNOLOGIES IN IMPROVING THE TEACHING METHODS OF THE LAWS OF THERMODYNAMICS

Abstract: This article describes a one-hour training session based on modern educational technologies, in which students break down the teaching material according to the laws of thermodynamics into goals, facilitating independent study of the topic and improving logical thinking skills.

Key words: heat transfer, thermal conductivity, convection, radiation, amount of heat, heat capacity, energy, thermodynamics, interactive method.

Language: Russian

Citation: Karimov, A. M., & Karimova, O. A. (2021). The role of modern educational technologies in improving the teaching methods of the laws of thermodynamics. *ISJ Theoretical & Applied Science*, 11 (103), 384-388.

Soi: <http://s-o-i.org/1.1/TAS-11-103-33> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.33>

Scopus ASCC: 3304.

РОЛЬ СОВРЕМЕННЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ В СОВЕРШЕНСТВОВАНИИ МЕТОДИКИ ПРЕПОДАВАНИЯ ЗАКОНОВ ТЕРМОДИНАМИКИ

Аннотация: В данной статье изложено одночасовое учебное занятие на основе современных образовательных технологий, в котором учащиеся разбивают учебный материал по законам термодинамики на цели, облегчая самостоятельное изучение темы и повышая навыки логического мышления.

Ключевые слова: теплообмен, теплопроводность, конвекция, излучение, количество теплоты, теплоемкость, энергия, термодинамика, интерактивный метод.

Введение

Ведь сегодня в образовательном процессе широко используются разнообразные современные образовательные технологии, активизирующие образовательную деятельность учащихся при сохранении традиционной формы урока [1]. Такое современное образование,

используя удобство и возможности технологий, наглядно осмысливает сложные физические явления, которые трудно представить учащимся, и, как следствие, воплощает в себе совокупность приобретаемых ими знаний, умений и навыков [2]. С этой целью в данной статье будет изложена логика, взаимосвязь теоретических и

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

практических знаний в новом содержании современных образовательных технологий в ходе одночасового урока без затруднений в обучении законам термодинамики [3]. При этом повторяются известные ученикам сведения о взаимном превращении различных видов энергии [4], анализируется на конкретных примерах сложный процесс, при котором внутренняя энергия тела изменяется одновременно и за счет теплопередачи, и за счет выполнения работы [5].

Основная часть

Технология урока с применением указанной методики имеет следующей вид:

Обучающая цель урока – понимание физической сущности законов термодинамики с целью углубления знаний учащихся.

Воспитательная цель урока – формировать у учащихся умения и навыки наблюдения, анализа проводимых опытов по законам термодинамики с использованием образовательных технологий и делать из них выводы.

Развивающая цель урока – повышение практической навыков учащихся с возможностью применения законов термодинамики на практике, развитие научного мировоззрения, воображения.

Компетентная цель урока – из признаков интересности и практической значимости законов термодинамики учащиеся делают методически грамотные самостоятельные выводы, опираясь на примеры из жизни.

Методические рекомендации урока – использование образовательных технологий для укрепления знаний учащихся по теме.

Оснащение урока – средства наглядной информационно-коммуникационной техники.

Ход занятия: Как известно, процесс передачи энергии от одного тела к другому без выполнения работы называется теплообменом или теплопередачей [6]. Теплообмен – происходит путем теплопроводности, конвекции и излучения (см. рис.1).

Когда тела нагревается, тепловое движение его частиц увеличивается. Тогда повышается температура тела. Эта температура передается соседним частицам, и скорость их движения увеличивается. В результате повышается температура следующей части тела. Следовательно, тепло передается.

Слой газа или жидкости, находящийся вблизи источника тепла, быстро нагревается, расширяется и его плотность уменьшается. Это слой начинает всплывать вверх. Его место занимает более холодный слой с более низкой температурой и, следовательно, более высокой плотностью. В этом процессе тепло передается от высокотемпературных слоев молекул газа или жидкости путем сдвига к слоям с более низкой температурой. Это явление конвекции

Все нагретые тела передают тепло другим телам посредством излучения или с путем рассеяния лучей. Передача тепла лучами отличия теплопередачи от других видов заключается в том, что теплопередача происходит даже в абсолютном вакууме, в котором отсутствует молекула вещества.

Следовательно, теория теплообмена является частью учения о передаче энергии и вместе с термодинамикой составляет теоретическую основу тепловой техники. Тепловые явления основаны на законах и принципах термодинамики.

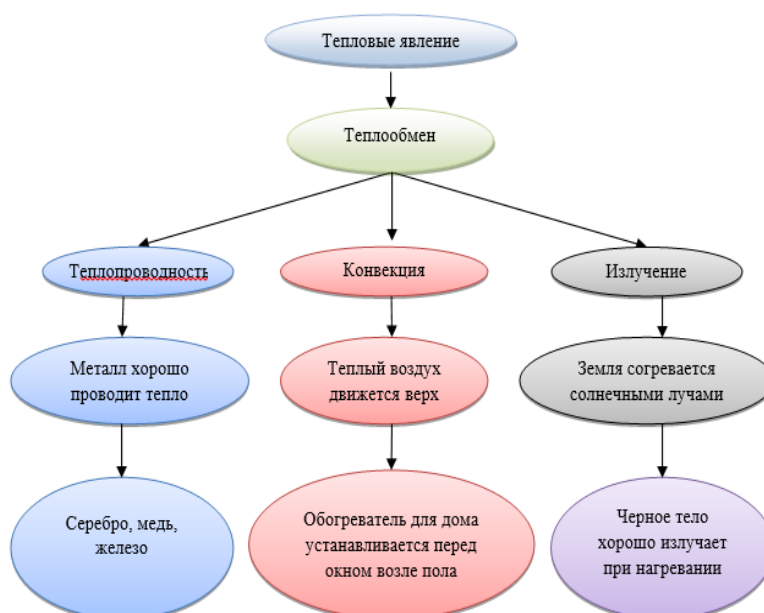


Рис. -1. Объяснение теплообмена по методу кейс-стадии

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Применение явлений теплопроводности, конвекции и излучения в практике, технике (см. рис. 1), а также при переходе количества теплоты от одного тела к другому следует [7]:

- при нагревании или охлаждении $Q = cm(t_2 - t_1)$;

- при конденсации и образовании пара $Q = \pm Lm$;

- при плавлении и кристаллизации $Q = \lambda m$

после анализа использования вычислительных формул, в тепловых явлениях сохранение энергии и превращение ее из одного вида в другой дается следующее определение одному из основных законов природы - законам термодинамики: - применение математического выражения к тепловым процессам закона сохранения энергии и перехода из одного вида в другой называется I - (главным) законом термодинамики.

Предположим, что при переходе системы из состояния 1 в состояние 2 ее внутренняя энергия изменилась на $\Delta U = U_1 - U_2$. Такое изменение может произойти только тогда, когда отдает в систему количество теплоты Q . В дополнение к изменению внутренней энергии система может выполнять механическую работу A в больших количествах.

Давайте посмотрим на это на примере чайника с подогревом. Количество теплоты Q , которое получает чайник, расходуется на нагрев воды внутри, т. е. увеличение внутренней энергии воды ΔU , а водяной пар на механическую работу A , выполняемую против внешней силы (силы тяжести крышки) при поднятии крышки чайника. Тогда математическое выражение I - го (главного) закона термодинамики можно записать в виде [8]:

$$Q = \Delta U + A \quad (1)$$

Следовательно, часть количества теплоты, отдаваемой системе Q , тратится на изменение ее внутренней энергии ΔU и на то, чтобы система выполняла работу A против внешних сил.

Также принято такое определение термодинамики, которое еще глубже проливает свет на физическую природу этого закона, то есть подтверждает невозможность создания вечного двигателя (лат. «perpetuum mobile»): - без получения энергии извне невозможно существование периодического движущегося устройства, выполняющего работу.

Из формулы (1) видно, что если количество теплоты, полученное извне, равно $Q = 0$, то $A = -\Delta U$. Знак минус в выражении означает, что система выполняет работу за счет уменьшения

своей внутренней энергии. Если учесть, что количество внутренней энергии в системе ограничено, то после ее окончания двигатель заглохнет.

Пример: Предложен следующей проект вечного двигателя (рис.2). Закрытый сосуд разделен на две половины герметической перегородкой, сквозь которую пропущены трубка и водяная турбина в кожухе с двумя отверстиями. Давление воздуха в нижней части больше, чем в верхней. Вода поднимается по трубке и наполняет открытую камеру. В нижней части очередная порция воды выливается из камеры турбины, подошедшей к отверстию кожуха [9].

Вопрос: Почему данная машина не будет работать вечно?

Ответ: согласно определению I-го закона термодинамики «без получения внешней энергия невозможно существование периодического движущегося устройства, выполняющего работу». Таким образом, если полученное внешнее количество теплоты, равно нулю ($Q = 0$), работа выполняется за счет уменьшения внутренней энергии системы. Как только внутренняя энергия заканчивается, двигатель останавливается.

Как известно, понятие теплоемкости вводится с целью характеристики теплопроводных способностей веществ. Количество теплоты Q , необходимое для изменения температуры T тела на $1K$, называется теплоемкостью C [8], т. е.

$$C = \frac{Q}{\Delta T} \quad (2)$$

здесь $\Delta T = T_2 - T_1$ - разница температур между следующим и предыдущим телом;

Q - количество теплоты.

Давайте предположим, что два тела с одинаковой массой, сделанные из разных веществ, нагреваются одинаково. Когда мы измеряем их температуру через определенное время, мы знаем, что они не равны. Причина в том, что теплопроводные способности разных веществ различны.

При охлаждении тела до $1K$ выделяется, конечно, количество тепла, равное его нагреванию. Теплоемкость тел разной массы, изготовленных из одного и того же вещества, будет разной. Потому что теплоемкость прямо пропорциональна массе. В некоторых случаях возникает необходимость сравнения теплоемкостей тел, изготовленных из разных веществ. Для этого необходимо знать теплоемкости тел равной массы.

Impact Factor:

ISRA (India)	= 6.317	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 1.582	РИИЦ (Russia)	= 3.939	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 9.035	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

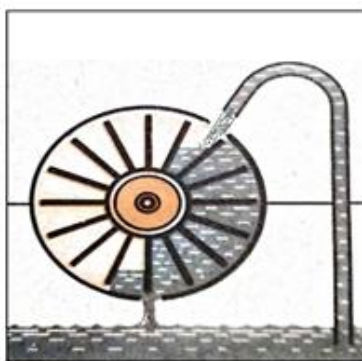


Рис.- 2. Проект вечного двигателя.

Количество теплоты, необходимое для изменения температуры тела массой 1 кг на 1 K , называется удельной теплоемкостью c [8].

$$c = \frac{c}{m} = \frac{q}{m\Delta T} \quad (3)$$

Учитывая углубленное изучение физики, можно дать для газа понятие теплоемкости при неизменном объеме c_V и при неизменном давлении c_p [10].

По описанию $c = \frac{Q}{\Delta T}$. Если $\Delta V = 0$, исходя из формулы $A = p \Delta V$,

работа будет $A = 0$. Тогда по формуле (1) $Q = \Delta U$ или по формуле (2) $C_V = \frac{\Delta U}{\Delta T}$.

Если мы запишем формулу (4) для идеального газа,

$$p \Delta V = pV_2 - pV_1 = \frac{m}{\mu} RT_2 - \frac{m}{\mu} RT_1 = \frac{m}{\mu} R \Delta T \quad (5)$$

Если мы поставим формулу (5) в формулу (4), то

$$c_p = c_V + c_p = c_V + p \frac{\Delta V}{\Delta T} = c_V + \frac{m}{\mu} R \quad (6)$$

Предполагая, что работа выполняется только за счет объемного расширения, используя I – й закон термодинамики для одного моля вещества, если мы рассчитаем количество тепла,

$$Q = C_V \Delta T + p \Delta T \quad (7)$$

Чтобы вышеизложенные мнение были более понятны, обратим внимание на следующее примеру.

Задача: На нагревание $0,16\text{ кг}$ кислорода на 12°C было затрачено $Q = 1750\text{ Дж}$. Как протекал процесс: при $V = \text{const}$ или $p = \text{const}$? $C_V = 650\text{ Дж}/(\text{кг}\cdot\text{K})$ [11].

Решение. Чтобы процесс протекал при $V = \text{const}$, требовалось бы сообщить количество теплоты $Q_V = mc_V \Delta T = 0,16\text{ кг} \cdot 650\text{ Дж}/(\text{кг}\cdot\text{K}) \cdot 285\text{ K} = 29355\text{ Дж}$.

При $P = \text{const}$ $Q_p = \Delta U + p \Delta V$. $\Delta U = Q_V$, а при $P = \text{const}$ $p \Delta V = \frac{m}{\mu} R \Delta T$, то $Q_p = Q_V + \frac{m}{\mu} R \Delta T$. Подставляя числовые данные, получим: $Q_p = 41201\text{ Дж}$. Следовательно, $Q_p = Q$, т.е. процесс протекал при $P = \text{const}$.

Для дальнейшего укрепления полученных знаний учащихся мы используем современную образовательную технологию - интерактивный метод МППО (МППО-заглавные буквы слов мнение, причина, пример, обобщение) [3]. Данная технология служит для анализа полученных теоретических и практических знаний, поиска путей решения проблемы путем сравнения, закрепления знаний, самостоятельного, критического мышления (рис.3).



Рис. 3. Использование метода МППО для дальнейшего укрепления знаний учениками

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
РИИЦ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Из рис.3 видно, что используя интерактивный метод МППО, можно следить, что учащиеся делают частные выводы из общего мышления по полученным знаниям по теме, усваивают учебный материал путем сопоставления и сравнения, а также совершенствуют навыки творческого мышления.

Заключение

В заключение можно сказать, что в целях дальнейшего повышения учебной активности

учащихся при обучении законам термодинамики в качестве дидактических материалов для закрепления и самостоятельного изучения темы широко использовались современные образовательные технологии - кейс-стади и интерактивные методы МППО и в результате чего развивалось креативное мышление учащихся с усвоением физической сущности, применимости и закономерностей сохранения и превращении энергии в природе.

References:

1. Qahhorov, S. (2007). *Fizika ta'limi davriyligini loyihalash texnologiyasi*. (p.91). Tashkent.
2. Djourayev, M., & Sattorova, B. (2015). *Fizika va astronomiya o'qitish nazariyasi va metodikasi*. O'quv qo'llanma. (p.354). Tashkent.
3. Karimov, A.M., & Toshpulatova, Sh. O. (2017). *Fizikani o'qitishda innovatsion texnologiyalardan foydalanish*. (pp.212-214). Tashkent.
4. Shamash, S.Ya., et al. (1992). *O'rta maktabda fizika o'qitish metodikasi (Molekulyar fizika va elektrodinamika)*. Ooqituvchilar uchun qo'llanma. (pp.49-56). Tashkent.
5. Karimova, O.A. (2021). *Maktab fizika fanida issiqlik hodisalarini o'rganish O'quv-uslubiy qullanma*. (p.51). Navoiy.
6. Turdiyev, N.Sh., & Yusupov, A. (2017). *Fizika. O'qituvchilar uchun metodik qo'llanma*. (pp.106-109). Tashkent.
7. Orexov, V.P., & Korjym, E.D. (1989). *O'rta maktabning 9 – sinfida fizika o'qitish*. O'qituvchi uchun qo'llanma. (pp.32-42). Tashkent.
8. Tusunmetov, K., et al. (2019). *Fizika. Umumiy o'rta ta'lim maktablarining 9-sinf uchun darslik*. (pp.50-56, 67-70). Tashkent.
9. Buxovtsev, B.B., Klimontovich, Y.L., & Myakishev, G.Ya. (1982). *Uchebnik dlya 9 klassa sredniy shkoliy*. (p.76). Moscow.
10. Matveev, A.N. (1987). *Molekulyarnay fizika*. (pp.145-147). Moscow.
11. Orifjonov, U., Yusupov, A., Mirzahmedov, B., Yuldasheva, M. (2007). *Fizikadan savol va masalalar to'plami*. (p.42). Tashkent.

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 11 Volume: 103

Published: 10.11.2021 <http://T-Science.org>

QR – Issue



QR – Article



David V. Roytman
unemployed
researcher

A.A. Yusif-zadeh
unemployed
researcher

F.M. Farzalizadeh
unemployed
researcher

kerem.shixaliyev@mail.ru

PRODUCTION OF THIOPHENE FROM THE PYROLYSIS GAS OF THE JANGICHAY SHALE

Abstract: In this work, preparation of thiophene and its homologues from the products obtained during the pyrolysis of the Jangichay oil shale of Azerbaijan is considered. As is known, thiophene is used to obtain physiologically active compounds, drugs, herbicides and other substances. Recently, the main source of production of thiophene and its homologues is the coke industry, but this source does not meet the demand for thiophene.

Key words: thiophene, oil shale, pyrolysis, gas, tar, organic carbon, extract, thermogravimetric analysis.

Language: English

Citation: Roytman, D. V., Yusif-zadeh, A. A., & Farzalizadeh, F. M. (2021). Production of thiophene from the pyrolysis gas of the Jangichay shale. *ISJ Theoretical & Applied Science*, 11 (103), 389-392.

Soi: <http://s-o-i.org/1.1/TAS-11-103-34> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.11.103.34>

Scopus ASCC: 1600.

Introduction

UDC 662.67.66.092.174:3:543:1

Research on possible substitutes for oil has increased recently. Countries such as Australia and Scotland use oil shales to obtain products similar to those from oil. [1] About 60 shale deposits have been discovered in Azerbaijan, but the possibility of using them as energy fuel remains unexplored due to the presence of significant oil and gas reserves. [2].

Thermal processing of oil shale produces significant quantities of thiophene and its derivatives. Thiophene is used to obtain photochromic materials, physiologically active compounds, drugs, optical elements for solar cells, herbicides, etc.

If we take into consideration that 1 kilogram of thiophene and its compounds cost about 1000 US dollars, the production of thiophene from oil shale is an environmentally friendly process. [3-5]

For the research, Jangichay shale was taken. Fischer analysis, elemental and technical analysis were carried out for this shale. The type of kerogen and its chemical composition were determined.

Fischer analysis showed that the composition of shale includes: tar – 14.75%, solid residue – 71.54%, decomposition water – 2.62%, gas – 11.09% of the mass.

According to the elemental analysis, the amount of total carbon is 21.93%, of which 1.23% is of carbonates and, probably, comprises the mineral part of the shale. Organic carbon is 20.7% and together with hydrogen, nitrogen and organic sulfur forms the basis of kerogen. [4]

Part of the organic carbon remains in the solid residue due to compaction reactions. We have established that the Jangichay shale belongs to the 2nd (mixed) type. The technical analysis determined the density – 2250 kg/m³, humidity – 2.84% wt., the

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

content of volatiles – 22.63% wt., ash – 71.54%, and heat of combustion – 9850 KJ/kg. To determine the chemical composition of kerogen, we used N-methylpyrrolidone extraction. [6-12]

Method

The extract yield for the Jangichay shale was 6.4%. The main part of the extract was made up of

oils, which were 75.4%. The rest were of asphaltenes and tars. Studies have shown that in kerogens, there are hydrocarbons that consist of 20 carbon atoms, and there are about 221 aromatic isoprenoids of the alkane series.

Jangichay oil shale was subjected to pyrolysis. The material balance at a temperature of 700°C is given in Table 1.

Table 1. Material balance of Jangichay oil shale pyrolysis.

Taken:		Yield, % mass.	
1. Shale Oil		100.0	
Total		100.0	
Produced:			
1. Gas		0.78	
2. Liquid part		91.98	
3. Spent shale		6.42	
4. Loss		0.82	
Total		100.0	

Results

Figure 1 shows the thermogravimetric analysis of the pyrolysis of the Jangichay oil shale.

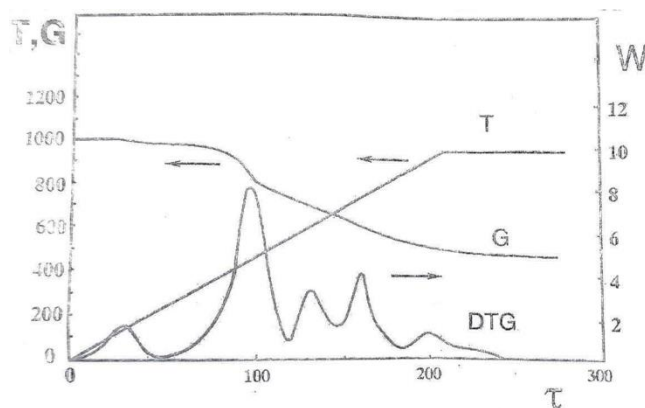


Fig. 1. Thermogravimetric Analysis Data.

As is seen in Figure 1, there are four different regions of sample weight loss.

Loss of mass of the sample due to moisture removal occurred at 120-200°C. Weight loss at 400°C with a maximum at 440°C indicated pyrolytic decomposition of kerogen. The observed weight loss at 520°C was due to the occurrence of secondary decomposition-compaction reactions of the heavy part of the kerogen decomposition products. Weight loss at temperatures above 650°C was due to the mineral matrix, primarily of the decomposition of carbonates.

According to the values of the degrees of conversion calculated by the formula

$$-\ln[-(\ln(1-x))'/T^2]$$

a graph of the dependence 2 is built (Fig 2). Two linear sections with different slopes indicate the occurrence of two different reactions in the temperature range of 300-520°C. The primary reactions of decomposition of kerogen proceed at 280-380°C, and secondary processes at 380-520°C, which is consistent with the literature data. [7]

Impact Factor:

ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

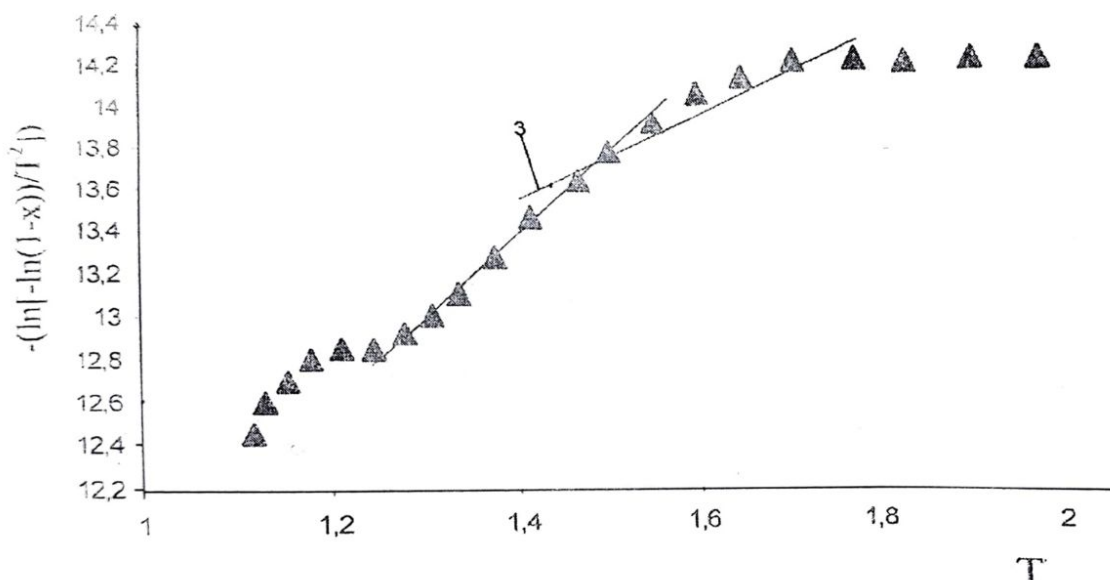


Fig. 2. Graph of the dependence $-\ln[-\ln(1-x)]/T^2$ versus $1/T$

From this graph, one can determine the activation energy by the slope of the straight line from the reciprocal temperature. The activation energy of primary reactions (E_1) is 13.95 kJ/mol, and the activation of secondary reactions (E_2) is 29.86 kJ/mol.

The decomposition-compaction reactions of primary pyrolysis products with higher activation energies E_2 proceed at temperatures above 380°C with the formation of final decomposition products. The composition of the Jangichay shale pyrolysis gas is shown in Table 2.

Table 2. Composition of the pyrolysis gas

Components	H_2	CO	CO_2	CH_4	C_2H_4	C_2H_6	C_3H_6	C_3H_8	C_4H_8	C_4H_{10}	H_2S
Composition % mass	0,5	1,5	14,5	12,5	11,5	8,5	7,0	4,0	11,4	16,6	12,0

We carried out the formation of thiophene by heterocyclization of hydrogen sulphide, which allows us to protect the environment from pollution, and also allows us to improve the main indicators of oil shale processing. To obtain thiophene from gas, a catalyst was prepared, which was first used in Germany. (8.9) The catalyst has the following composition: Al_2O_3 – 10% macc., SiO_2 – 84%, Fe_2O_3 – 5,4%, K_2O – 0,4%, Na_2O – 0,2 % of the mass.

All of these products were ground in a laboratory mill and mixed with 250 ml of distilled water. The resulting mixture was dried at 105 °C for 24 hours, after which it was calcined at 500 °C. The catalyst was loaded into a reactor to which a condenser-cooler was connected. Pyrolysis gases were passed through the reactor at 650 °C. The resulting catalyst was analyzed on an HP6890 chromatograph. The analysis results are given in Table 3.

Table 3. Catalyst composition

Temperature, °C	H_2S , %		Composition of the catalyst, % by weight				
	From reactor		Thiophene	2-Methylthiophene	3-Methylthiophene	Benzene	Toluene
	Before	After					
600°C	10,0	2.5	53,4	14,2	6,4	19,4	6,8
650°C	8,0	0,2	75,7	1,2	5,0	12,4	5,7

As can be seen from in Table 3, at 650°C, 75.7% of thiophene and 6.2% of its homologues are obtained. Besides, benzene and toluene are obtained in the

composition of the catalyzate. The rest of H_2S makes up 0.2%, that is, the conversion is 98.34%.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Table 4 shows the chemical composition of the pyrolysis tar boiling within the range of the beginning of boiling (b.b.) – 205°C.

Table 4. Fraction composition b.b. – 205°C.

№	Component	% of yield per fraction
1	Benzene	36,5
2	Thiophene	14,1
3	Methylthiophene	24,27
4	Toluene	6,43
5	Ethylbenzene and xylenes	5,4
6	Other components	13,3

Conclusions

As can be seen from the Table 4, the light fractions of the pyrolysis tar contain 38.37% of thiophene compounds, which makes it expedient to use them as raw materials for the extraction of thiophene-aromatic concentrate by the method technologically designed on an industrial scale. (10)

Thus, it was possible to obtain thiophene and its homologues from the pyrolysis gas of Jangichay oil shale of Azerbaijan by heterocyclization of hydrogen sulfide on a catalyst used in Germany.

References:

- Blokhin, A.I., Nikitin, A.N., & Fraiman, G.B. (2000). Combustible Shale - an alternative fuel and raw material for chemistry. *Fuel and energy complex*, Moscow, № 19-25.
- (1998). *Oil shale of Azerbaijan*. (p.124). Baku: Publishing House of the Institute of Geology of the Academy of Sciences of Azerbaijan.
- Strizhakova, Yu.A. (2008). *Oil shale. Genesis, compositions, resources*. (p.192). Moscow.
- Kerimov, Kh.M. (2006). Chromatographic study of oil shale of Azerbaijan deposits. *Journal of chemical problems*, Baku, № 1, pp.46 - 49.
- Kerimov, Kh.M. (2006). Extraction of oil shale with N-methylpyrrolidone. *Journal of chemical problems*, Baku, № 2, pp.374 - 376.
- Yusif-zade, A.A., Mamedkhanova, S.A., & Dadayeva, G. Ch. (2020). Investigation of some physicochemical properties of inflammable shale of Azerbaijan. *Theoretical & Applied Science*, Philadelphia USA, issue 02, volume 82, pp. 44 - 47. SoI: <http://s-o-i.org/1.1/TAS-02-82-9> Doi: <https://dx.doi.org/10.15863/TAS.2020.02.82.9>
- Robinson, W.E., & Cook, G. L. (n.d.). *Compositional Variations of the Organic Material of Green River Oil Chal Colorado*. No. 1 Core - U.S. Bur. Mines. Rep. Invest - 7492 - 1971.
- Ballice, L., Yuksel, M., & Shulzh, et al. (1995). Application of infrared spectroscopy to the classification of kerogen types and the Thermogravimetrically Deverol Pyrolysis Kinetic of Oil Shales. *Fuel*, 74, pp.11618 - 1623.
- Schulzh, H., & Boringev, W. (1984). Kohec. Entwicklung und Anwendung der Kapillar G.G. Gesamtprobenchik fur Gas. *Dampf Vielstoffgemische, Deutche Forschungbericht*, Hambourg, v. 320, pp. 4 - 20.
- Prelatov, V.G., & Kashirsky, V.G. (1989). Pyrolysis of high-sulfur shale resin. *Oil shale industry - Inform. Ser. 1, No. 2*, pp. 5 - 6.
- Shixaliyev, K. (2020). Application of Heavy Metal Ions Separation from Contaminated Water in Industry. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*. Volume-9, Issue-6, April 2020. pp. 132-134. ISSN: 2278-3075, Scopus Link: <https://www.scopus.com/sourceid/21100889409> <https://www.ijitee.org/download/volume-9-issue-6/> www.ijitee.org
- Shixaliyev, K. (2020). Retrieval Number: F3070049620 / 2020 © BEIESP DOI: 10.35940/ijitee.F3070.049620 Propeties of the Composition Based on modified Polyethylenes. ... *International journal of Innovative Technology and Exploring Engineering*, Volume-9, Januaru 2020, pp.2484-2493.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Contents

	p.
16. Kadirov, K. N., & Rizaeva, D. Sh. «Alpamysh» is one of the most remarkable monuments of the Uzbek people's epos.	301-304
17. Yuldasheva, Z. K., & Ismatullayeva, A. A. Effect of sowing norms on yield indicators of varieties of oilseed flax.	305-309
18. Jurayev, S. T. Yield of cotton lines in different climatic-soil conditions of Uzbekistan.	310-313
19. Rakhmanova, A. Kh., & Rakhmonova, G. E. Bunin and his vision of the sacred truths of the Quran.	314-318
20. Sadullaeva, S. H., & Fayzullaeva, Z. Investigation on self-similar analysis of the problem biological population kolmogorov-fisher type system.	319-322
21. Yulchiyeva, M. G., Kasimov, Sh. A., Turaev, H. Kh., & Jovliyeva, M. B. Synthesis and study of the sorbent by modification of carbomide-formaldehyde resin with 2,4 diphenylhydrazine.	323-327
22. Utegenova, S. T. Audit quality control in Uzbekistan and all over the world.	328-332
23. Ismatov, S. Idiostyle - author's occasional specificities.	333-336
24. Khusanova, Sh., Imomqulov, Sh., Ergashov, Yu., & Sarimsakov, O. Interaction of Cotton Field with Saw teeth in the Ginning Process.	337-343
25. Ikromov, I. A., Abduraximov, A. A., & Fayzullayev, H. Experience and Prospects for the Development of Car Service in the Field of Car Maintenance.	344-346
26. Ezekwesili, T. P. Board ownership and audit quality of Nigerian quoted companies.	347-354
27. Mardonov, Sh., Mustafakulova, D., & Ismatullaev, O. Scientific and pedagogical prerequisites for the formation of systematic thinking of future biology teachers.	355-358
28. Dawletmuratova, Z. Combined kinship terms.	359-361
29. Yusupov, K. A. Scientific and methodological bases of teaching the Karakalpak literature.	362-371
30. Tolibov, B., & Hasanov, A. Theoretical basis and analysis of experiences on studying the mechanisms of oxides formation during oxidative firing of molybdenum sulfides.	372-375
31. Toleubaeva, A. O. Newspaper text: metaphor as a means of expression.	376-378

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

32. **Kasimov, Sh. A., Turaev, Kh. Kh., & Mardonov, A. B.** 379-383
 Thermogravimetric study of sorbent based on covalently immobilized zinc dithiocarbamate on a polyester matrix.
33. **Karimov, A. M., & Karimova, O. A.** 384-388
 The role of modern educational technologies in improving the teaching methods of the laws of thermodynamics.
34. **Roytman, D. V., Yusif-zadeh, A. A., & Farzalizadeh, F. M.** 389-392
 Production of thiophene from the pyrolysis gas of the Jangichay shale.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350



Scientific publication

«ISJ Theoretical & Applied Science, USA» - Международный научный журнал зарегистрированный во Франции, и выходящий в электронном и печатном формате. **Препринт** журнала публикуется на сайте по мере поступления статей.

Все поданные авторами статьи в течении 1-го дня размещаются на сайте <http://T-Science.org>.

Печатный экземпляр рассылается авторам в течение 3 дней после 30 числа каждого месяца.

Импакт фактор журнала

Impact Factor	2013	2014	2015	2016	2017	2018	2019	2020	2021
Impact Factor JIF		1.500							
Impact Factor ISRA (India)		1.344				3.117	4.971		6.317
Impact Factor ISI (Dubai, UAE) based on International Citation Report (ICR)	0.307	0.829							1.582
Impact Factor GIF (Australia)	0.356	0.453	0.564						
Impact Factor SIS (USA)	0.438	0.912							
Impact Factor ПИИЦ (Russia)		0.179	0.224	0.207	0.156	0.126		3.939	
Impact Factor ESJI (KZ) based on Eurasian Citation Report (ECR)		1.042	1.950	3.860	4.102	6.015	8.716	8.997	9.035
Impact Factor SJIF (Morocco)		2.031				5.667			7.184
Impact Factor ICV (Poland)		6.630							
Impact Factor PIF (India)		1.619	1.940						
Impact Factor IBI (India)			4.260						
Impact Factor OAJI (USA)						0.350			

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

INDEXING METADATA OF ARTICLES IN SCIENTOMETRIC BASES:



International Scientific Indexing ISI (Dubai, UAE)
<http://isindexing.com/isi/journaldetails.php?id=327>



Research Bible (Japan)
<http://journalseeker.researchbib.com/?action=viewJournalDetails&issn=23084944&uid=rd1775>



ПИИЦ (Russia)
<http://elibrary.ru/contents.asp?issueid=1246197>



Türk Eğitim İndeksi (Turkey)
<http://www.turkegitimindeksi.com/Journals.aspx?ID=149>



DOI (USA)
<http://www.doi.org>



Open Academic Journals Index (Russia)
<http://oaji.net/journal-detail.html?number=679>



Japan Link Center (Japan) <https://japanlinkcenter.org>



Kudos Innovations, Ltd. (USA)
<https://www.growkudos.com>



Cl.An. // THOMSON REUTERS, EndNote (USA)
<https://www.myendnoteweb.com/EndNoteWeb.html>



Scientific Object Identifier (SOI)
<http://s-o-i.org/>



Google Scholar (USA)
http://scholar.google.ru/scholar?q=Theoretical+science.org&btnG=&hl=ru&as_sdt=0%2C5



Directory of abstract indexing for Journals
<http://www.daij.org/journal-detail.php?jid=94>



CrossRef (USA)
<http://doi.crossref.org>



Collective IP (USA)
<https://www.collectiveip.com/>



PFTS Europe/Rebus:list (United Kingdom)
<http://www.rebuslist.com>



Korean Federation of Science and Technology Societies (Korea)
<http://www.kofst.or.kr>

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIIHQ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350



AcademicKeys (Connecticut, USA)
http://sciences.academickeys.com/jour_main.php



Cl.An. // THOMSON REUTERS, ResearcherID (USA)
<http://www.researcherid.com/rid/N-7988-2013>



RedLink (Canada)
<https://www.redlink.com/>



TDNet
 Library & Information Center Solutions (USA)
<http://www.tdnet.io/>



RefME (USA & UK)
<https://www.refme.com>



Sherpa Romeo (United Kingdom)
<http://www.sherpa.ac.uk/romeo/search.php?source=journal&sourceid=28772>



Cl.An. // THOMSON REUTERS, ORCID (USA)
<http://orcid.org/0000-0002-7689-4157>



Yewno (USA & UK)
<http://yewno.com/>



Stratified Medical Ltd. (London, United Kingdom)
<http://www.stratifiedmedical.com/>

THE SCIENTIFIC JOURNAL IS INDEXED IN SCIENTOMETRIC BASES:



Advanced Sciences Index (Germany)
<http://journal-index.org/>



Global Impact Factor (Australia)
<http://globalimpactfactor.com/?type=issn&s=2308-4944&submit=Submit>



SCIENTIFIC INDEXING SERVICE (USA)
<http://sindexs.org/JournalList.aspx?ID=202>



International Society for Research Activity (India)
<http://www.israjif.org/single.php?did=2308-4944>

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184

ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350



CiteFactor (USA) Directory Indexing of International Research Journals

<http://www.citefactor.org/journal/index/11362/theoretical-applied-science>



International Institute of Organized Research (India)

<http://www.i2or.com/indexed-journals.html>



JIFACTOR

JIFACTOR

http://www.jifactor.org/journal_view.php?journal_id=2073



Eurasian Scientific Journal Index (Kazakhstan)

<http://esjindex.org/search.php?id=1>



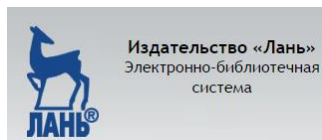
SJIF Impact Factor (Morocco)

<http://sjifactor.inno-space.net/passport.php?id=18062>



InfoBase Index (India)

<http://infobaseindex.com>



Электронно-библиотечная система «Издательства «Лань» (Russia)

<http://e.lanbook.com/journal/>



Journal Index

<http://journalindex.net/?qi=Theoretical+%26+Applied+Science>



Open Access JOURNALS

Open Access Journals

<http://www.oajournals.info/>



Indian Citation Index

Indian citation index (India)

<http://www.indiancitationindex.com/>



Index Copernicus International (Warsaw, Poland)

<http://journals.indexcopernicus.com/masterlist.php?q=2308-4944>

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	ПИИЦ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

International Academy of Theoretical & Applied Sciences - member of Publishers International Linking Association (USA) - international Association of leading active scientists from different countries. The main objective of the Academy is to organize and conduct research aimed at obtaining new knowledge contribute to technological, economic, social and cultural development.

Academy announces acceptance of documents for election as a member:
Correspondents and Academicians

Reception of documents is carried out till January 25, 2022.
 Documents you can send to the address T-Science@mail.ru marked "Election to the Academy members".

The list of documents provided for the election:

1. Curriculum vitae (photo, passport details, education, career, scientific activities, achievements)
2. List of publications
3. The list of articles published in the scientific journal [ISJ Theoretical & Applied Science](#)
 - * to correspondents is not less than 7 articles
 - * academics (degree required) - at least 20 articles.

Detailed information on the website <http://www.t-science.org/Academ.html>

Presidium of the Academy

International Academy of Theoretical & Applied Sciences - member of Publishers International Linking Association (USA) - международное объединение ведущих активных ученых с разных стран. Основной целью деятельности Академии является организация и проведение научных исследований, направленных на получение новых знаний способствующих технологическому, экономическому, социальному и культурному развитию.

Академия объявляет прием документов на избрание в свой состав:
Член-корреспондентов и Академиков

Прием документов осуществляется до 25.01.2022.
 Документы высылаются по адресу T-Science@mail.ru с пометкой "Избрание в состав Академии".

Список документов предоставляемых для избрания:

1. Автобиография (фото, паспортные данные, обучение, карьера, научная деятельность, достижения)
2. Список научных трудов
3. Список статей опубликованных в научном журнале [ISJ Theoretical & Applied Science](#)
 - * для член-корреспондентов - не менее 7 статей,
 - * для академиков (необходима ученая степень) - не менее 20 статей.

Подробная информация на сайте <http://www.t-science.org/Academ.html>

Presidium of the Academy

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	PIHII (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Signed in print: 30.11.2021. Size 60x84 $\frac{1}{8}$

«**Theoretical & Applied Science**» (USA, Sweden, KZ)
Scientific publication, p.sh. 76.125. Edition of 90 copies.
<http://T-Science.org> E-mail: T-Science@mail.ru

Printed «Theoretical & Applied Science»