INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

TO DETERMINE THE QUALITY INDICATORS OF FRUITS GROWN IN VINEYARDS. DEVELOPMENT OF PREVENTIVE MEASURES AGAINST DISEASES OF THE VINE AND THEIR

Zufarzhon Zafarovich Kodirov
Assistant, Fergana Polytechnic Institute, 150100, Fergana, Uzbekistan
E-mail: qodirovzufar93@mail.ru

Aliyeva Farizaxon Abdulaziz qizi
Assistant, Fergana Polytechnic Institute, 150100 Fergana, Uzbekistan
E-mail: qodirovzufar93@mail.ru

Abstract

The geographical location and soil-climatic conditions of the republic are very favourable for the development of all types of agriculture. It is estimated that 35% of the world's crop is lost each year, 14% of which is due to pests and diseases, while 20% of the crop is transported and stored. dies during. In our country, crops can be damaged by various pests and diseases. Pests such as apples, spider mites, grape mites, aphids, and diseases such as powdery mildew, rust, and other diseases are especially harmful.

Keywords: Fruit, oidium, diphenoconazole, krezoksim-methyl, penconazole, tebuconazole, propiconazole, ampact, impact, fungicide.

Introduction

The vine is among the plants that are more susceptible to pests and diseases. The main reason for this is the cultivation of the vine in a specific way. Diseases that provoke fungi to toxins cause the most harm. Anthrax disease, which causes thrush, is one of the ancient diseases of the vine, known from the hook in Europe, North America. Anthracnose spread to large areas of French vineyards in 1835-1840 years, causing a sharp decrease in productivity [3-28].

Before the introduction of the European oidium and mildew disease, it was on this continent that anthracnose toxin was the most harmful disease. Currently, anthracnose is distributed in all countries where grapes are grown, except in some arid climates, in the CIS, Ukraine, Russia (Dagestan, Astrakhan and Rostov regions, Krasnodar and Stavropol regions), Moldova, Transcaucasia and Kazakhstan. Occurs in all regions of Uzbekistan.

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

The disease mainly develops in deep, humid areas, on riverbanks, near groundwater, in densely planted vines.

The disease affects all parts of the vine [5-9].

Symptoms of the disease on the leaves of the vine appear reddish-grey or dark brown spots of various shapes. The tissue breaks down quickly and the leaves become perforated and fall off. Later, these spots are replaced by curved wounds. There are bumps on the edges of the wounds and dark spots. As the disease progresses, the twigs turn black like charcoal [8-13].

Young twigs are severely damaged and form small, brown, single, purple-brown bordered spots. The spots gradually turn light grey-grey or purple-black, grow to a length of 7-8 cm or more, merge, penetrate the middle of the rod and turn into sores. A thick, bulging callus tissue forms around the wound, the centre of the wound becomes slightly concave, and such branches become brittle and break in the wind. Damaged twigs eventually darken, lag in growth, and die [6-10].

Grapes are susceptible to disease until they begin to ripen from the buds and buds. The main axis of the stem and the signs of disease in the fruit bands are the same as in the branches. When the spots surround the main axis of the vine, the lower part of the head of the vine bends and withers. Grapes are slightly sunken, with purple in the middle, then whitish-gray, with a narrow dark brown or black border around them. If they spread into the vine, it will crack [18-21].

In some parts of Europe, some varieties are not planted due to severe anthracnose infestation. As the leaves and flowers of the affected vines fall off, the branches lag in growth, and the vines are less productive, the vines lose growth and yield. Chronically and severely damaged currents can die in 3-4 years. In Uzbekistan, anthracnose is more harmful (but less harmful than oidium). In humid weather, the affected vine in early June can lose 27.9% of the leaves of Hussein and Black currant varieties. The yield of severely damaged huskies is 3-5 times lower than in healthy ones. In the experiment, when the plants were protected from anthracnose with fungicides, the yield of grapes per bush increased from 9.0 kg in the affected control to 22.1-24.0 kg (2.5-2.7 times) [14-23].

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

Figure 1. Symptoms of current anthracnose

Experimental Part

The fungus that causes anthracnose is the ascomycete fungus Elsinoe ampelina, the anamorph of which is Melanconiales Deuteromycetes (selomiset) - Sphaeceloma ampelinum. Synonymous with Gloeosporium ampelophagum.

The fungus ascostroma develops on black, charcoal-like, wintering twigs. They form pear-shaped lobules and sacs inside the lobules. The sacs are 80-100x11-23 µm, each containing 8 ascospores.

Ascospores are reddish-black or brownish-black, 4-celled, oval-ovate, 11-35x4.5-6 microns, often 29-35x4.5-5 microns. During the anamorphic stage, the fungus forms small, dotted, and light-coloured pads in the affected tissue. The pads are composed of numerous, short, cylindrical, dense conidiophores and conidia that develop in them. Conidia are single-celled, oval, cylindrical or conical, colourless, mucous-covered, 2-8x2-6 µm, slightly dry or orange crust when dried. In autumn, sclerosis develops around the wounds (pads) on the branches [11-34].

Table 1. Biology of current antrocnosis disease

	Diseases of the limbs and their symptoms					The incubation	Ways of transmission
Sphaeceloma ampelinum (class Deuteromycetes, order Melanconiales)	The disease affects the leaves, stems, fruits, flowers, leaf axils and twigs of the vine. The leaves are light brown and then dark brown.	In the spring	The leaves and flowers fall off when damaged. The vines do not grow well and	Infected plant and its remains	Sick vine	8-10 days	Wind, insects and work tools

Countermeasures

The vines should be grown in a well-ventilated, sunny place and placed on a trellis. Pruning them promptly, pruning the excess twigs and leaves, especially in the fall to cut the damaged (brown-spotted) twigs that overwinter the fungus in the fall, and the first "damaged twigs" that appear in the spring, and loss (e.g., burial) is so important that if these measures are not applied, the effectiveness of other control methods will be greatly reduced. It is necessary to turn the ground between the currents, clear it of weeds, and take measures to control pests and other diseases [36-40].

Use only healthy cuttings for planting, soaking them in a 10% solution of ferrous sulfate or 3% nitrogen before planting; when creating new vineyards seedlings should not be planted near groundwater. The following fungicides are approved for use in Uzbekistan against anthracnose:

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

Bordeaux liquid (10-15 kg/ha of copper sulfate, 1% solution), Vectra 10% sus.k. (0.3 l/ha), lime-sulfur decoction (0.5-10), iron sulphate 53% e.kuk. (30-40 kg/ha, 2-3% solution until the tree buds spread and the soil beneath) and Folicure BT 22.5% em.k. (0.25 l/ha) [32-35].

In experiments, Alto Super 33% em.k. (0.3 l/ha), Impact 25% em.k. (0.2 l/ha), Vectra 10% sus.k. (0.3 l/ha), Bumper 25% em.k. (0.25 l/ha) and Torso 22.5% em.k. (0.15 l/ha) fungicides were highly effective against anthracnose (89.5% in leaves and fruits, up to 95% in stems) [7-24].

After shedding the leaves in the fall and cutting the vines, or before the buds sprout in the spring, add %30 to the vines in a solution of 1.5% DNOK (1.5 kg per 100 litres of water) and 2-3% (2-3 kg per 100 litres of water). spray or 10% solution of ferrous sulfate. In the spring, when the young shoots reach a length of 5–10 cm, or with the appearance of 2–3 leaves, it is recommended to repeat the treatment after 7–10 and 14–20 days, if necessary, taking into account the development of Bordeaux liquid or other effective fungicide spraying and disease [1-4].

False Un-Shuddering Or Mildyu Disease

Mildew, caused by the current Plasmapara viticola, was previously unknown in Europe. Only in the second half of the XIX century, the disease was detected in 1878 in the southern regions of France. The disease came to France with vine varieties imported from America. Fon Timani and Plans, both scientists, simultaneously discovered that the fungus that causes mildew was the same fungus that the De Bari vine identified in American varieties in 1863 and called Peronospora viticola.

Farlow, a professor at the University of Cambridge, confirmed that the fungus identified by De Bari was the same species as the fungus that causes mildew in the United States. According to this scientist, the fungus, which causes the disease, does not cause much harm in Europe, because it does not harm the vines. In the United States, the fungus infects not only the leaves but also the fruit. However, Professor Farlov's prediction turned out to be incorrect, as where mildew was detected, the disease affected not only the leaves but also the fruits of the vine (Veniskaya, 1948).

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

In 1879, at lightning speed, it spread throughout France, the upper regions of Italy, and Lower Austria. The following year it was discovered in Upper Elsa, Germany.

In 1881, the disease spread to Eastern Europe, including Hungary, Greece, Romania, and Turkey. During this period, mildew began to cause great damage in Europe. Its damage was particularly severe in France, Spain, Portugal and even Algeria [2-15].

Mildew was first identified in Russia in Bessarabia, in the Caucasus in 1886, in the Crimea in 1891, and the Don in 1895.

Vine mildew has previously affected only the leaves of European varieties, but later affected the flowers, fruits, stems and even stems of the plant.

Mildew was first recorded in Uzbekistan in 1993 in the Syrdarya region. In recent years, the disease has been observed in Tashkent, Syrdarya, Samarkand and Navoi regions, sometimes in large areas.

Symptoms of the Disease

With Mildyu, all the green parts of the current are damaged. Between the veins on the leaves, first yellowish, oily, then reddish-brown, angular, 2-3 cm wide, sometimes with chlorosis spots around them. At high humidity, a soft, thick, dense, leafy, white mould develops on the underside of the leaf, in front of the spots on it. This layer is composed of sporangiophores and sporangia of the pathogen, which are an important source for the pathogen to spread in the vineyard, damaging twigs, flowers and fruits, and overwintering.

Severely damaged leaves often fall off. As a result, the grapes produce less sugar and the winter buds are less resistant to cold. Damaged green twigs appear brown, slightly sunken spots. When three parts of the rod are damaged, it thickens, becomes crooked, is covered with a white layer in high humidity (such a rod is called a "flag rod"), eventually turns brown and dies will be. Similar symptoms develop on the petals, stems, young inflorescences and flower petals and kill them [13-21].

Fruit buds and caves are severely damaged, the surface is indistinctly grey, and the leaves are covered with dust. Over time, the grapes become more resistant to disease, but the fungus can pass through and damage the shoots of the infected fruit. Damaged fruits do not form dust, they turn brown and rot. Damaged white grapes are indistinctly grey-green, and black fruits are pale red.

Unlike healthy grapes, the damaged ones do not soften, the flesh becomes hard, and some or all of the grapes may fall off.

The Harm of the Disease

In humid and warm summers, when the disease is severe and no control measures are taken, the grape crop can be completely lost. In the mild regions of Uzbekistan, in 2001-2003, the disease caused 75-80 per cent of the leaves 25-30 per cent of the leaves to fall off, and 95-97 per cent of the inflorescences to wither; the yield of less damaged wine varieties decreased by an average of 25-45%. In 2004, when May-June was drier, there was less development of the disease in food varieties, and 5-10% of inflorescences and caves withered [13].

Symptoms of the Pathogen

The causative agent is Plasmopara viticola, a fungus of the genus Peronosporales. The fungal obligate parasite, whose hyphae enter between cells, enters the cells with a diameter of 4-10 microns and feeds by absorbing nutrients. Sporangiophores of asexual reproduction emerge from the stems in clusters, the lower part is slightly wider, 140-850x8-12 µm, the upper part is branched several times, and the teeth at the ends of the branches (up to 200 per sporangiophore) appear sporangia [29-34].

Sporangia ovate or ellipsoid-shaped, colourless, 12-30x8-17 µm. Each sporangium contains 1-10 kidney-shaped zoospores, 6-8x4-5 µm in size, with two spines protruding from the fold. Zoospores of different sexes combine to form heterocariotic mycelium.

Measures of Struggle

All recommended agro-technical and organizational measures against un-dew and anthracnose should be used in the fight against fake flour. The disease is usually not treated without fungicides. Two groups of fungicides are used abroad: 1) contact fungicides (copper preparations, dithiocarbamates and phthalimides) are used for prophylactic treatment, protect the plant from damage for 7-10 days and the fungus does not develop resistance to them; the compound also has a therapeutic effect when simoxanil, which has no internal effect but penetrates into the tissue, is added to one of them.

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

2) internally active fungicides (fosetyl-aluminium and phenyl amides) are also effective when it rains, have a healing effect, and fully protect the current for two weeks.

The disadvantage of phenyl amides is that they have fungal resistance. For this reason, it is recommended to use phenyl amides only 2-3 times a season, alternating treatments with contact fungicides. In addition, iron sulphate is used in the spring before budburst, and Bordeaux liquid, copper chloride, captan, ridomil, euparen and other drugs are used during leaf sprouting. CIS countries use more copper drugs against Mildew. In spring, when the first treatment leaves with 2% Bordeaux liquid, the next is treated 10 days before flowering, and the third time immediately after flowering with 1% preparation. Instead of Bordeaux liquid, copper sulfate can be used in the amount of 8-10 kg/ha. Processing is carried out before watering. In Uzbekistan, gardeners were treated with 1% Bordeaux liquid (500-600 l/ha) with good results [22-31].

Research on Bacterial Diseases in the Cultivation of Vine Fruits

Pseudomonas tumefaciens Sm.et Towns (synonymous with Agrobacterium tumefaciens) is the causative agent of bacterial cancer. The disease is prevalent in all viticultural regions, with Georgia and Krasnodar Krai being the most prevalent. The disease mainly affects the surface of the plant, especially the root collar. At the onset of the disease, a soft white tumour of a few mm appears under the skin. They then grow and harden, cracking the bark and coming to the surface of the bark. The surface of the tumour is uneven - it is rough and changes colour. It turns yellow and dark brown with age. By autumn or winter, the tumours rupture. The affected part of the plant grows up to 10-20 or 30 cm in height. A large swelling develops in the root canal of the plant. Tumours in nursery seedlings can also appear on the roots. The disease, caused by the bacterium Agrobacterium tumefaciens, is widespread in the vine all over the world, including in all regions of Uzbekistan, and causes great damage (especially to young seedlings).

Disease Symptoms

Soft or hard (woody) galls (tumours) appear mainly in the root canal (usually in the welded area). They are white, soft, smooth, fleshy, then yellowish, brown, and finally black, hard and rough.

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

Tumours are small at first, a few millimetres wide, then grow, merge, reach a diameter of 30 cm, dry out in autumn, become pure and can fall to the ground. The disease spreads from the vine to the bottom of the stem and a depth of 1 m to the root.Small tumours can be confused with nematodes. The upper bouts featured two cutaways, for easier access to the higher frets.

The Harm of the Disease

The greatest damage to the disease is observed in the vine seedlings. Usually, most of the young shoots are rendered unusable mainly due to this disease. Infected seedlings do not grow well, grow short, and some die. Damaged vines that enter the fruit do not grow well, the quantity and quality of the crop decreases, and some wither.

Detailed information on infected plants, pathogens, disease development and control measures can be found in the section “Fruit Tree Root Cancer”. The causative bacteria enter the tissues through insects, dew, anthracnose, and various mechanical injuries.

Symptoms of the Pathogen

Agrobacterium tumefaciens bacterium (synonyms Pseudomonas tumefacient and Rhizobium tumefaciens), aerobic, gramsalbium, blunt-pointed rod, 1-6 stalked peritrich, motile or sometimes immobile, without spores, no endospores, 1,0-3x0, 4-1.0 μm, located one by one or in chains, moving using a single clamp. Bacteria live in the soil. In KDA and other typical nutrient media, the colonies are white or yellowish-white, bulging, shiny, and clear. There are three subtypes of the pathogen (biovar), 2 of which infect apples and 3 of which infect current. Special nutrient media have been developed to isolate the pathogenic bacterium and its biovars, but artificial diagnosis and re-isolation of the host plant by the bacterium is necessary for proper diagnosis. Tomatoes, tobacco, and sunflowers are used as indicator plants, and virulent strains of the bacterium cause tumours. The bacterial gall excitability (virulence) is provided by the Ti-plasma (Ti-DNA), which is made up of DNA. The nomenclature of the pathogen is quite confusing, as the nomenclature is based on the pathogenicity of the bacterium, which depends on the plasma. Strains of the bacterium that are isolated from tumours but lose plasmid also lose their pathogenicity (virulence).

Development of the Disease

The bacteria overwinter in the soil and in the spring the host enters the plant's roots and infects them.In this case, the pathogen enters the plant genome in plasma. Plasma causes the plant to synthesize large amounts of growth hormone, which leads to uncontrolled cell growth, proliferation, and tumour formation. In the spring, the bacteria leak fluid from the tumours, spread to healthy parts of the plant and other plants, and infect them. The bacterium spreads to plants through raindrops, irrigation water, tillage equipment, insects, and grafting materials, and enters tissues only through mechanical injuries. . In infected plants, new, small tumours form after 2-4 weeks at a temperature of 20 ºC, it takes longer for galls to appear at 15 ºC, or the infection remains latent for the next 1-2 years (Figure 7).

Fruit trees, vines, shrubs, and roses that have previously been affected by oedema, especially seedlings, are severely affected. The disease develops more strongly in neutral and slightly alkaline, heavy soils, near groundwater. Bacterial growth is reduced in acid soils but does not develop when the pH is below 5. Insufficient soil moisture increases the risk of disease.

Conclusion

Apply all recommended agro-technical measures against root canal cancer of fruit trees; in autumn the leaves should be treated with 5% copper sulfate or 5% Bordeaux liquid.

The tumours can be removed with paraffin, but they will grow again next year. Protect trees from various mechanical injuries in the fight against root collar bacterial cancer; digging up and burning swollen seedlings in nurseries; use of bacterial-resistant root grafts; use bud welding as much as possible; apply 1% copper sulphate to the welded joints and wash several times with water; selection of fruit trees and vines that have been damaged by tumours in previous years, which do not collect groundwater to create a nursery, sour soils, application of phosphorus and potassium fertilizers to the soil, obtaining material for grafting from healthy plants should; vineyards and other equipment used in the vineyard should be disinfected with 5% formalin.

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

References

1. Кабиашвили М. (1967). В Корневая гнил виноградной лозы в Грузии. «Материалы сессии Закавказского совета по координации научно исследовательских работ по защите растений». Ереван: С. 379-382.
2. Кодиров, З. З., & Кодирова, З. А. (2020). Влияние влаги при хранении высококачественного рафинированного, дезодорированного хлопкового, подсолнечного и соевого масел. Universum: технические науки, (10-2 (79)).
3. Буранова, Д. Я., Кодиров, З. З., & Кенжаев, Ф. Я. У. (2020). Исследование кинетики и селективности экстракции хлопкового масла на основе модификации растворителя. Universum: технические науки, (11-3 (80)), 32-34.
4. Кодиров, З. З. (2021). Влияние концентрации NaOH и избытка щелочи на состав продукта при рафинировании хлопкового, соевого, подсолнечного масла. Universum: технические науки, (3-3 (84)), 50-52.
5. Усманов, Б. С., & Кодиров, З. З. (2021). Влияние солнечных лучей на состав продуктов при хранении высококачественных растительных масел. Universum: технические науки, (2-2 (83)).
6. Кодиров, З. З., & Кодирова, З. А. (2020). Изучение процесса гидрогенизации сафлорового масла. Universum: технические науки, (10-2 (79)).
7. Кодиров, З. З. (2021). Физико-химические изменения и нормативные требования к хранению и доставке растительных масел населению. Universum: технические науки, (10-3 (91)), 8-12.
8. Кодиров, З. З., & Ибрагимов, Л. А. (2021). Исследование технологий экстракции растительного масла из гранулированного сафлорного семени. Universum: технические науки, (10-3 (91)), 13-15.
9. Усманов, Б. С., Кодиров, З. З., & Ибрагимов, Л. А. (2021). Способы использования высокочастотных лучей при длительном хранении сырья для производства растительных масел. Universum: технические науки, (5-3 (86)), 93-96.
10. Саттарова, Б. Н., Кодиров, З. З., & Хусанова, Н. С. (2020). Синтез Литиевых Солей П-Ферроценил-Бензойной Кислоты И Их Применение Как Биостимуляторов При Выращивании Кур. Universum: химия и биология, (11-1 (77)).

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

11. Зокирова, С. Х., Акбаров, Р. Ф., Кадирова, Н. Б., & Ўғли, Қ. З. З. (2019). Генезис пустынно-песчаных почв Центральной Ферганы. Universum: технические науки, (12-1 (69)).
12. Кодиров, З. З., & Буранова, Д. Я. (2021). Изучение критериев безопасности экстрагированного хлопкового масла. Universum: технические науки, (10-3 (91)), 5-7.
13. Kodirov, Z. Z., Yakubzhanovna, B. D., & Saydillaevna, K. N. (2021). The physicochemical changes that occur uring storage of vegetable oils and standard requirements for their delivery to the population. Innovative Technologica: Methodical Research Journal, 2(11), 133-143. https://doi.org/10.17605/OSF.IO/4SJ3T
14. Khamrokulovich, M. M., Kodirov, Z. Z., & Muzaffarovna, U. S. (2021). The importance of fish oil in the human body and methods for determining the quality of fats. Innovative Technologica: Methodical Research Journal, 2(12), 16-24. https://doi.org/10.17605/OSF.IO/QM4TJ
15. Kodirov, Z. Z., Rakhmatovna, M. I., & Saydillaevna, K. N. (2021). Study of the process of sample refining and deodorization of sunflower and soybean oils. Innovative Technologica: Methodical Research Journal, 2(12), 8-15. https://doi.org/10.17605/OSF.IO/S42CR
16. Anvarjonovich, M. M. M. S., & Kodirov, Z. Z. (2021). Common oidium or un-dew disease in vineyards and measures to combat IT. Innovative Technologica: Methodical Research Journal, 2(12), 111-120. https://doi.org/10.17605/OSF.IO/G746A
17. Qodirovich, Y. O., Yakubzhanovna, B. D., & Kodirov, Z. Z. (2021). Research of hydrogenization of soybean oil. Innovative Technologica: Methodical Research Journal, 2(11), 94-100. https://doi.org/10.17605/OSF.IO/QKYSB
18. Хусанова, Н. С., Мамажанова, И. Р., & Кодиров, З. З. (2021). Роль питательных веществ в жизнедеятельности организма. Интернаука, (37-1), 11-13.
19. Usmanov, B., & Umurzakova, S. (2021). Investigation of the chemical composition and properties of low-grade phosphorites of tashkur. Innovative Technologica: Methodical Research Journal, 2(12), 100-105. https://doi.org/10.17605/OSF.IO/DP4KM

20. Атамухамедова, М. Р., & Эргашев, А. А. (2021). Санитарно-гигиеническое значение вентиляции производственных помещений. Интернаука, (37-1), 19-21. https://doi.org/10.32743/26870142.2021.37.213.304223
21. Усманов,Б.С.,&Эргашев,А.А.У.(2021).Исследованиеп роцесса разложения низкосортных фосфоритов.Scientific progress, 2(7),712-717.
22. Ergashev, A. A., & Najmitdinova, G. K. (2020). Features of differentiated teaching of chemistry. Экономика и социум, (12-1), 89-92.
23. Алиева, Ф. А. К., Шодиев, Д. А. У., & Далимова, Х. Х. К. (2021). УФ-видимый записывающий спектрофотометр уф-2201 спектрофотометр исследование синтетических красителей в безалкогольных напитках. Universum: технические науки, (11-3 (92)), 66-69.
24. Rakhimzhanovna, A. M., Adkhamzhanovich, A. A., & Avazkhanovich, E. A. (2021). Physical performance indicators in young swimmers. Innovative Technologica: Methodical Research Journal, 2(11), 59-62. https://doi.org/10.17605/OSF.IO/UGXTS
25. Медатов, Р. Х., Усманов, Б. С., Обидов, З. Ж. Ў., Эргашев, А. А. Ў., & Курбанов, Ж. Х. (2019). Экспериментальные установки для исследования теплоотдачи при конвективном теплообмене. Universum: технические науки, (11-2 (68)).
26. Курбанов, Ж. Х., Давлятова, З. М., Эргашев, А. А. Ў., Абролов, А. А., & Омонбаева, Г. Б. К. (2019). Интенсивность теплообмена при нагреве раствора nh2coonh4 в теплообменнике с высокоэффективными трубами. Universum: технические науки, (12-2 (69)).
27. Саттарова, Б. Н., & Ибрагимов, Л. А. (2021). Химический состав и свойства куриного мяса. Главный редактор: Ахметов Сайранбек Махсутович, д-р техн. наук; Заместитель главного редактора: Ахмеднабиев Расул Магомедович, канд. техн. наук; Члены редакционной коллегии, 36.
28. Хошимов, И. Н., Худойбердиева, Ш. Д., & Ибрагимов, Л. А. (2021). Значения растений сои, мош, арахиса. Oriental renaissance: Innovative, educational, natural and social sciences, 1(8), 597-604.
29. Атамухамедова, М. Р., & Саидова, А. Я. (2020). Основные правила питания при занятиях спортом. In Новая наука: история становления, современное состояние, перспективы развития (pp. 265-267).

ISSN: 2776-0987 Volume 3, Issue 1, Jan., 2022

30. Атаджанова, Б. Т. (2018). Развитие профессиональной компетентности у студентов как важнейшая задача высшей школы. Достижения науки и образования, (17 (39)).
31. Атамухамедова, М. Р. (2021). Анализ сырья и методы приготовления сложных удобрений. Интернаука, (37-2), 5-7.
32. Атамухамедова, М. Р., & Аминжанов, А. А. (2021). Показатели физической работоспособности у молодых пловцов. Интернаука, (37-1), 9-10.
33. Хакимов, М. У., & Умурзакова, Ш. М. (2021). Определение Содержания Воды В Моркови В Продуктах Питания. Central Asian Journal Of Theoretical & Applied Sciences, 2(12), 60-63.
34. Саттарова, Б. Н., Аскаров, И. Р., Хакимов, М. У., & Мадалиев, Т. А. (2019). Влияние полученных биостимуляторов на повышение живой массы цыплят. Universum: химия и биология, (12 (66)).
35. Мамажанова, И. Р., & Медатов, Р. Х. (2020). Преимущества местных адсорбентов при рафинации хлопкового масла. Universum: технические науки, (11-2 (80)).
36. Rustamjon, M., Bobir, K., & Hasan, H. (2021). Reduction of free fatty acids in cotton oil with immobilized lipase. Universum: технические науки, (5-6 (86)), 74-78.
37. Mahammadjon, Q., & Anvar, A. (2021). Bioazot-n biopraparate in agriculture. Innovative Technologica: Methodical Research Journal, 2(11), 101-105. https://doi.org/10.17605/OSF.IO/3TF2J
38. Усманов, Б. С., Гоппиржонович, Қ. М., Сайтбековна, Қ. У., & Умурзақова, Ш. М. (2019). Особенности состава и свойств сафлорового соапстока, определяющие области его применения. Universum: технические науки, (12-3 (69)).
39. Қосимов, М. Г., Мадалиев, Т. А., & Абролов, А. А. (2019). Улучшения качества зерна, выращиваемого в условиях ферганской области. Интернаука, (40-2), 28-30.
40. Мадалиев, Т. А., Гоппиржонович, Қ. М., & Абролов, А. А. (2020). Биоразведка бактерий-продуцентов экзополисахаридов из различных природных экосистем для синтеза биополимеров из барды. Universum: химия и биология, (12-1 (78)).