

BIOLOGICAL SCIENCES AND AGRARIAN SCIENCESDOI: <https://doi.org/10.36719/2707-1146/44/32-36>**Elnura Mustafayeva**Azerbaijan State Agrarian University
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alekberr777@gmail.com**STUDY OF FUNGAL DISEASES OF PEAR PLANT IN GANJA DASHKASAN REGION
AND MEASURES TO COMBAT IT****Abstract**

The article provides information about fungal diseases that affect pear plants and methods of combating the disease. It has been established that fungal diseases occur in all regions of Azerbaijan. Information is provided on fungal diseases that affect pear plants and methods of combating the disease. It has been established that fungal diseases occur in all regions of Azerbaijan.

Effective use of climatic resources in agricultural production is one of the important tasks of solving the food problem. To implement it, it is necessary to study in depth the characteristics of the territories and identify potential opportunities that ensure more efficient and rapid development of agriculture.

Depending on environmental conditions, the incubation period of the pathogen lasts 3-8 days. All life processes of plants, including the object of study, the pear plant, their variety, quality and quantity of products, are associated with the amount of solar radiation and lighting conditions. A lack of potassium in the soil also increases the development of the disease

Keywords: *pear plant, pathogen, spore stage, fungal diseases*

Introduction

As we know the agricultural field is a traditional production area in Azerbaijan, as the same case has been in the world since ancient times. One of the main directions of the economic policy of the state is to increase the agricultural products in the country and to improve the supply of food of the population at the expense of local production. It should be noted that many diseases and pests cause damage to crops. That's why, one of the most important areas of the modern plant-growing system is the plant pest, disease and weed-fighting system. Climate fluctuations, cataclysmic disturbances, ecological imbalances occasional out-of-control, and a greater number of abiotic and biotic stress factors have been shown to accelerate in recent years. On one side of the world, rain pours during the summer, it snows, rivers break, wildfires break on the other, and the daily average air temperature does not fall below 40-45°C. Across the nation, there is famine in Africa in other countries, food is scarce in many countries in Asia, and thousands of hectares of agricultural fields are either burned or flooded since the high science of America and Europe is sometimes unable to handle the whims of nature. With all these problems gone, thousands of microorganisms are constantly attacking agricultural fields to provide their nutrients. The persistence of some local varieties is not equal to that of diseases and pests, some varieties are superior in productivity and product quality, and these varieties cannot be kept away at all times (Bayramova, Mammadov, 2010: 204).

In spite of all this, the damage to plant diseases is too great. Sometimes these numbers are hard to imagine. Today, food security is in the first place in the world and our country. Today's student and tomorrow's expert, who is directly involved in the safe food supply of Azerbaijani human beings, should not forget all this, but should not abandon their efforts in the study of

phytopathology, both biological and agricultural science. Similar symptoms produced by different disease sufferers, sometimes resulting in an improper diagnosis of the pathogen, also diminish the effectiveness of measures to fight the outcome. It is known from ancient times that there is a lot of medicine for diseases (Mammadov, Bayramova, Siriyeva, 2014:58).

In this regard, the methods of combating plant diseases are also very diverse. Helping plants purchase environmentally friendly products is one of the most pressing issues of the day, reducing the development of various diseases caused by a complex of agrotechnical measures that stimulate their normal growth and development. However, by applying biological, physical-mechanical, and chemical, quarantine measures on scientific grounds, integrating struggle into the overall system can ensure high biological efficiency. According to our research, fungal diseases are one of the common diseases in regions. It is found in more fruit trees of the region (plums, quince, apples, pears and fields (Mardakan, Shuvalan, Buzovna, Bilgah, Sabunchu, Surakhani, Zigh, Pirshagi, Zagulba, Hovsan, Digah, Binagadi, Khirdalan, Bina, Balakhani, Mehdiabad, etc.) (Mammadov 2004: 32).

In general, Azerbaijan is a mountainous country. Therefore, it is of great scientific and practical importance to study the spatial distribution of natural factors, quantitative relations of individual elements of climate, distribution of agro-climatic indicators depending on height, inlet relief conditions, and exposition of slopes (Jafarov, 2009: 328).

The fruit plants in this group belong to the Gulch (*Rosaceae*) family, the apple (*Maloideae*) subfamily, and individual genus.

The flower shoots are complex, the fruit is not real, and they are located on perennial and one-year-old hilltops of the fruit stalks. In some apple varieties (mainly small fruit ranette type *varieties*), the flower shoot is also found on the growth of a fruit branch. It has a high stripping and cog recovery capacity. Most representatives are insect-pollinated.

Seeded fruit crops are widely cultivated in our republic and have large areas. Of this group, those promising commodity crop production in our country are apples, pears, quince, mussels, and partial feeders (Rajabli, 1966: 229).

Pear – Seeded fruit plants stand second in area and crop production.

Fruits have been cultivated since ancient times because they are high quality and nutritious. Fruits contain a percentage of 5-15.7 sugars, 0.1-0.99 acids, 0.06-0.12 public substances, 0.18-0.44 ash elements, and various vitamins (A, B, B1, C, and PP).

The fruit is fresh and processed. According to international statistics, about 8 million tons of pears are produced worldwide. Italy is in I place (1.2 million t), the Czech Republic is in II (1.0 million t), USA is in III place (0.7 million t) for production.

Pear's CIS farmland amounted to more than 250,000 hectares. They are primarily cultivated in the southern regions of the country. The North boundary in these areas crosses St. Petersburg, Yaroslavl-Gorki, Ufa-Orenburg.

Pear is successfully cultivated in most districts of our republic. It is a highly productive plant. Ornamental gardens have 120-130 centner per hectare, and intensive gardens 300-500 centner or more.

Apples are the most common breed within fruit crops in our country. German farmland accounts for up to 50% of total fruit crops in our republic.

The rich chemical content, the ability to store fruit for a long time, high yields, and the ability to cultivate in different soil-climate conditions have led to extensive cultivation of this plant. Apples stand in the first place, according to crop area and total crop production. According to the data, more than 20 million tons of apples are produced worldwide. Pear plants are mainly cultivated in the mountainous parts of the Guba-Khachmaz and Ganja- Dashkasan regions of our republic.

The fruit is fresh and processed. Sort, grove, and crop from age 2-10 depending on cultivation conditions, producing a highly profitable plant for 20-100 years.

There are up to three hundred different varieties and kinds of apples in Azerbaijan. Sixty of these are necessary for industry. The advantage of buying other juicy fruits is that they can be stored

and used all year round. The growing season of the apple is as follows: summer (July, August), autumn (September, October), and winter (November to February). The same variety of apples may vary in maturity depending on climatic conditions. Depending on the type and variety of apples, the color, taste, and aroma are different.

The apple contains sugar up to 5-24%, about 1.3% acids (apples, lemons, cashews), pectin and vaccines, vitamins B and C, carotene, potassium, sodium, and iron salts from minerals. Iron salt in apples is of great healing importance. The main part of sugar in the apple is glucose and fructose, which are very useful for the cardiovascular system.

In addition to using apples naturally, several valuable canned products – compote, jam, povidlo, juice, pulp, etc. are prepared. These products have a great deal of therapeutic value. The apple and various preservative products made from it have a very good healing effect on heart weakness, bloating, chronic gastrointestinal diseases, as well as low vitamin content.

It is a highly productive plant. Potential performance reaches 1,500-2,000 centner per hectare.

Demand for external ambient conditions. Pear is a heat-relieving plant compared to apple. Trees can sustain 25...30° frost. Flowers are severely damaged in 2...3°, fruits in 2...4°, cranberries 5...6° frost. The light is in high demand. Humidity demand varies depending on the grove. Low humidity over a loud grove indicates a high demand, over humidity is for a short height (quince). It can be cultivated in different soil types. For good height and high yields, deep, fertile soil is more suitable.

All agrotechnical measures must be taken in a timely and correct manner to produce high-quality crops from pear trees. It is also essential that plant protection measures are properly implemented to combat disease and pests. Sometimes these diseases are not noticed until just before harvest, during harvest, or after fruit is stored. Agricultural crops, planted at optimal times, grow 25 to 30 days earlier than in Ganja. Because the distance of these places is near and the latitude north is the same, the researcher explains why this difference is due to the high annual active temperature totals.

In order to maintain quality and usability, strict compliance with the product storage regime (temperature, moisture, relative humidity, etc.) should be strictly observed. Because of the damaged and fully grown fruit, the acidic environment and carbohydrates are primarily caused by the development of mold fungus. It should be noted that these fungi survive the winter and can damage a pear tree in the next season.

The most common and severely damaging fungal diseases in pears are black cancer, dew, and fruit rot. Pathogens of listed fungal diseases mainly develop in spring and summer. Pathogens develop intensively and infect new plants, especially when the weather is unstable (mainly in rainy weather). The higher amounts of rain than normal air conditions in the summer months and the excess air temperature cause the emergence of many diseases such as brewing syndrome, black cancer, rust, septoriosiis, dew, bacterial cancer, burning in trees, etc. in orchards (Mammadova, Garayev, 2000: 63).

The amount of hours the sun shines is important for the normal growth and development of plants. This is especially interesting against the wintry stages of the disease (Samedov, Khalilov, 1964: 402).

During the winter months, mostly in February, the majority of hours when the sun is shining brightly are caused by faster winterization. In this regard, the average number of hours of sun glare in the Ganja-Dashksan region is 2200-2400. The number of such hours in the mountainous and other mountainous regions (Gadabay) is relatively small.

The continuation of solar lighting in the region during the year is 2381 hours, 45% during the day and even 13% in December, 53% in January, 45% in February, 56% in March (Ermakov, 1987: 430).

Diseases are most prevalent in apples and pears. The apple brew syndrome is caused by *Venturia inaequalis*, and the pear brew by *Venturia purina* mushrooms.

Each type of fungus can produce disease in only one plant. In this regard, the fungus damages all organs, not just the fruit. The peculiarity of the disease begins by first forming a brown coating on the leaves, and then drying and shedding these leaves. Infected sensations of the plant occur in the fruit when the top of the jar turns a pale -tinty color, leaving completely unknown spots on the ribs, and the appearance of dislike is obtained in the fruit and cracks occur in the infected parts (Dorojkina, Beloshapkina, 2015: 55).

When such fruits are stored, they get staining and solubility occurs in the fruit. The disease is produced by increasing both by non-gender way and the way of ascospores. The conidies in this disease are mainly on spring and summer brew stains. The incubation period of this disease takes 8-20 days (Minkevich, 1996: 21).

At the same time, if the fruits are damaged, they are mainly caused by mittels. At this time, the damaged fruits have round neat stains on them. According to this disease, stains of bubbles may also develop and spread during the storage period of the fruit. When stored in the warehouse, the disease is carried out in other healthy fruits. These fruits are unsuitable for sale, but at the same time, the quality of the commodity decreases (Rahimov, 1988: 232).

To overcome these problems, it is recommended to fight in a comprehensive way. It is recommended to carry out pruning in the garden, at the same time to destroy infected plant remains, to carry out "ABC" or "Volk-92" Winter spraying, and to carry out spraying of insecticides containing "Imidacloprid". At the same time, the period of formation of bud in trees against their disease 1% Bordeaux solution, 0.5% Monica Bordeaux is recommended to be sprayed every 10-12 days (Peresypkin, Kirik, 1991: 206).

If the amount of precipitation is high, it is recommended to spray with a Bordeaux solution of 1% against diseases in the trees during the budding period.

Conclusion

The pear plant is known to have 13 major fungal diseases worldwide. The fungus infects the leaves, shoots, and fruits of the apple tree, causing white, pollen-like growth on the surface of the plant tissue.

Dust infusion can lead to reduced growth and yield on apple trees, as well as decreased fruit quality. Fighting against disease can be achieved through cultural practices like pruning and sanitation, as well as the use of fungicides.

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