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CONCEPTS ABOUT POMEGRANATE DISEASES IN PLANT PROTECTION

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Abstract
Phytopathology is an integral part of the field of plant protection in agriculture. Below we will talk about pomegranate diseases studied on the basis phytopathology.

Keywords: disease, fungus, pomegranate, phytopathology, spore, alternaria, aspergillus, fungicide.

Introduction

Pomegranate (Punica granatum L.) Is a subtropical plant species in the family anordosaceae (Punicaceae Horan) and the order Anordoshes (Punica), with 2 species (P. granatum L. and P. protopunica Balf.) from 1 generation to include (Punica L.) was formed. Also, the family Punicaceae was originally named Lythraceae. From the point of view of the pomegranate taxonomy, it has been suggested that Myrtales, possibly the type species of Saxifragales. Pomegranate K.The scientific naming by Linnaeus-Punica granatum is derived from the Latin words “pomum”-“Apple” and “granatus”-“selected, sorted”.

In the Middle Ages, pomegranate Pomum was known as granatum-a lot of apples, later K.Modern scientific botanist name Punica granatum by Linne L.ga changed. In ancient Rome, another name was malum granatum, meaning "grain Apple". It is still referred to as Apple in other languages: German Granatapfel, Italian for melograno (from apfel, mela — Apple).

The pomegranate is a bushy, narrow-leaved plant with a height of 2 meters, a double-sex flower with a light red hue, which is kuchal at the tip of its branch, accommodates 1-5 pieces, opens during the summer and autumn seasons. In a flower of a cosac-shaped shape, the Seeder is normally developed, bell-shaped or chocolate-shaped flowers do not form fruit. The flowers of the pomegranate are pollinated from the edge, the fruit (250-1000 g) has a whitish, red-brown outer bark. Seeds (10-20%) are formed on the inside of the fruit (~29-50% compared to the total dry weight) in up to 6-12 nests covered with a white-red pod on the outside[1]

The top of the 2-3-year-old branch of the pomegranate has a thick, gray-green tint, and the unvaccinated branches usually have a four-pointed shape. The Leaf-forming buds of the pomegranate usually settle on the branch in an even position, of the opposite type. During the growing season, a generation of several shoots is formed on the pomegranate plant, and

[1] Qo‘shiyev H.H., Ergasheva F.Sh. ANORCHILIK (Anor biologiyasi, anor yetishtirish agrotexnikasi, anorni zararkunanda va kasalliklardan himoya qilish)

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a new branch is formed from the central Bud. In some cases, the central Bud stops growing and can form thorns.

MATERIAL AND METHODS

The importance of conducting experiments in Phytopathology is enormous, especially since the correct diagnosis of diseases is necessary in the successful conduct of the measures of struggle against them. (I.I.Juravlev (1962) notes that the diagnosis is to define this disease according to the set of symptoms of the pathological condition. To do this, the plant must be thoroughly researched. When determining the diagnosis of plant diseases, the type of disease is initially determined, which is proven to be non-infectious or infectious, after which the causes of the origin of the disease or the characteristics of the causative agent of the disease are determined; ways to eliminate the disease are determined.

In later years, Phytopathology uses a variety of methods to differentiate healthy plants from infected plants or a particular type of disease from a second type of disease.

Macroscopic, microscopic, microbiological, physical and other proprietary Phytopathological methods are being used to diagnose patients.

Macroscopic method: in this case, the appearance of the plant is carefully monitored with the help of an ordinary eye or a magnifying glass, in which symptoms of the disease are detected, especially special attention is paid to the presence of fruit bodies of fungi, their tumors, sclerotia; signs of decay under the influence of fungi are detected, tumors, spots on the leaves. Symptoms such as weakening of plants from the effects of the disease, the division of color changes on their tops are observed. Depending on these symptoms, a diagnosis can be made when the external signs of the disease are evident and its triggers are known, but often a different type of research method is also required for this.

Microscopic method: this can often be the only way to mark the diagnosis of the disease. It examines the pores and spores of fungi, their size, the system and characteristics of mycelium, as well as changes in plant cells.

Spore-forming organs in damaged areas of infected plants are often examined. To do this, with the help of a sterilized nina, a collection of spores that are not visible to the otdium eye are separated by centrophaging and viewed under a microscope. At the time of detecting bag fungi for fruit bodies, their peritisities, claystotes, or dietromycete picnids are initially seen in the undersized lenses of the microscope, after which only fruit bodies crack and the sacs in it determine the location and size of the slores. In such studies, the type of fungi is determined by the type of causative agents of the disease using the Y detector.

Although the formation of fruits is not visible or there are various difficulties (obstacles) for its identification, by determining the characteristics of the structure of the mycelium, their type is determined. When more diseases are detected, it is only known what diseases are called by their causative agents (for example, fungal disease). Here it is necessary to stop on the microbiological method in Phytopathology.

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Physical phenomena are used physically. For example, when separating diseased and healthy seeds, they can be used by comparative weights. The importance of using rengenoscopy in the diagnosis of plant diseases is very great.

Biological and chemical methods of conducting Phytopathological experiments are also of great importance.

It should also be remembered that their external signs are not visible when carrying certain diseases. In this case, it is difficult to diagnose diseases. At such times, the Serological method is used.

MAIN PART

The pomegranate tree is susceptible to various diseases (fungal and bacterial). Fungi and bacteria cause several serious pomegranate diseases. Diseases vary by geographic region. While some diseases are considered a major problem in one place, the same disease is harmless or not found in other areas. While this is the case, diseases are common in most areas where pomegranate is grown. The main diseases that attack the pomegranate tree (leaves, stem, flowers, tree trunk and roots) are pomegranate Wilts, phytophthora disease, etc. Some other diseases at the same time cause damage to the tree and its fruit, such as Alternaria (Alternaria) rotting of the inside of the fruit, Alternaria (Alternaria) black spots, Cercospora (Cercospora) spotting of fruits and leaves, Anthrocnosis, bacterial burns, etc. Other diseases begin in the field and cause serious problems during the period of fruit storage-for example, Aspergill (Aspergillus) fruit rot, gray mold-like rot (Botrytis cinerea), blue-green mold (Penicillium spp), Coniella Garnet fruit decay, etc.

Pomegranate wilt (wilt): causative agent: the fungus Ceratocystisfimbriata is the main cause of the disease. Fusariumoxysporum, Verticilliumdahliae, and nematodes are also in the pomegranate wilt-triggering fungal Saras. Symptoms of Wilt one of the important diseases of pomegranate that negatively affect plant growth. On the damaged branches, the leaves turn yellow and bark. Leaves are shed on one or more branches of the plant. As a result, a whole tree completely wilts and dies in a few weeks. Wilt symptoms sometimes appear unexpectedly and only suddenly cause the leaves of the entire plant to turn yellow. In infected plants, the leaves dry out and stick to the Kings of dried fruits for several months. The circumference of the xylem (the fluid-moving part of the tree trunk) turns from dark red brown to purple dark brown or black spot. Dark gray-brown stripes appear on the veins and lateral shell tissue of the intersecting and vertical sections of diseased plant parts. The fungus spreads among adjacent trees, and sometimes sharply spreads through various areas of the garden. The disease is mainly found in loose (heavy) soil with high humidity. Ceratocystis fimbriata and F. oxysporum are soil-permeable and bottom-dwelling fungi. These are spread by infected seeds, irrigation, rainwater, root, insects, ground handling devices, shrubbery, and grafting weapons. Storming irrigation rainwater also spreads the disease from infected plants to healthy plants. Through the damage caused by insects, nematodes, and rodents in the roots, “wilt” disease spores attack healthy plants. "Wilt" disease also attacks damaged and completely healthy roots. After the disease enters the body, it develops in the water-permeable cells along the xylem, and as a result, leads to

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a sharp wilting of the plant and a change in the veins to a dark color. Depending on the symptoms of the disease, the infection is characterized as follows: • unlike Ceratocystisfimbriata, the trunk of the tree changes to brown, gray, black. • Unlike Fusariumoxysporum, only the xylem turns brown. • Nodules appear on small (Poplar) roots, and they are damaged by the nematode parasite.

Fight disease: the disease can be effectively combated with a wide range of measures, such as making rio for garden sanitation, planting excellent usluls, Chemical Control and disease-resistant varieties. Planting trees in sandy loam soil conditions at a distance of 4.5 m x 3.0 m and improving the water permeability of the soil.

Phytophthorosis (phytophthora) disease: causative fungus: Phytophphora sp. Symptoms the disease is provoked by fungi. They are especially dangerous in soil conditions where drainage is a problem where heavy and water remains standing. The build-up is the first to appear on the root, especially in close proximity to the soil, in the bark. Then the tree bark will crack. The bark of the root throat part of infected plants is displaced and the tissues are loosened. The roots of such trees will be healthy, and strong sucking branches can grow from them. Severely damaged plants wither.

Measures to combat the disease: in such a situation, a drip irrigation system is desirable. It is imperative that the root collar of the tree is not moistened during watering. It is necessary to be careful not to drive the soil deep. A garden should not be built in places where groundwater is close to the surface of the Earth. The soil should be given a lot of organic nutrients (manure, humus, humus, etc.).

Alternaria (Alternaria) fruit flesh rot or black rot: triggers: the fungi Alternaria alternata, Alternaria arborescens and Alternaria tenuissima. ” Rotting disease of the inner part of the fruit " is one of the powerful fungi that affect pomegranate. Alternaria sp. in addition to the Aspergillus niger it is also a disease that has the property of rotting the inside of the fruit.

Figure 1. Damage to pomegranate with alternariosis

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At the onset of symptoms, small reddish brown round spots appear on the surface and leaves of the pomegranate fruit. Internal rot disease occurs in the garden in most cases after rain during the initial periods of flowering and fruit development, and continues to develop into the preservation period. For this reason, it is also referred to as a maintenance-age disease. This disease spreads around the Flower Bowl, but the outer bark and hard bark of the Flower Bowl retain their healthy appearance. The hard thick peel of the infected fruit looks healthy and remains firm. The inner core, on the other hand, rots partially or completely from the Flower Bowl, and small reddish brown spots appear on the fruit. Damaged fruits turn light in color and become unsuitable for consumption. As the disease progresses, brown spots become larger and more fused, and the fruits begin to rot. Infected fruits tend to be lighter in weight and lighter in color compared to healthy fruits. At the beginning of the development of the disease, the fungus causes soft rot of pomegranate grains in a brown color, and the fungus develops and causes rotting of an entire fruit. Although it is difficult to distinguish the affected fruit, experienced fruit pickers are able to distinguish the infected fruit. If there is a lot of rain during the flowering period, the disease can damage more fruit for this reason, excess moisture during the flowering period increases the likelihood of damage from the disease[2]

Combating disease: practices in managing the Garden effectively can reduce the spread of the disease by using dust control and sanitation (removing old fruits and dried branches), for example. Infected, however, healthy looking fruits can be lowered to the ground by gently shaking the tree during the picking period. Protect trees from dehydration or excessive watering, otherwise fruit cracking will occur. Rotting disease from the inside of the pomegranate fruit enters the Saras of diseases that cannot be eliminated after picking. To control the spread of the disease, it is recommended to follow field sanitation and use fungicides before picking the fruit. All damaged fruits are recommended to be harvested and removed outside the garden and lost.

In order to ensure good air circulation in the trees and in the garden, it is necessary to give shape to the trees. As a result of internal rotting of the fruit, no symptoms of the disease are observed on the outside. Causative agent: Alternaria Alternata fungus Alternaria alternata, which causes black spots on the pomegranate, and Alternaria alternata, Alternaria arborescens and Alternaria tenuissima, which cause rotting of the inside of the fruit. This difference varies depending on the effect of the infection and the symptoms that occur in the fruit. The fungal damage caused by black spots is limited to exposure to the shell part of the fruit, and its edible interior remains healthy. Conversely, a fungus that causes rotting of the inside of the fruit damages the fruit, but its shell surface shows no signs of disease. Signs Alternaria black spots are identified by the appearance of small reddish, brown and black round spots on the surface and leaves of the pomegranate fruit. The spots covering the surface of the fruit can be from 1% to 50%, and are made up of necrotic wounds with a greenish yellow border. Infected leaves become pale in color and shed. Damage to the fruit is limited by the bark surface part, and the edible interior of the fruit remains

[2] AGRO-OLAM.UZ internet sayti

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undamaged.

Anti-kasalic measures: anti-Kasalic measures "Alternaria" follow the same pattern as rotting of the inside of the fruit or black rot disease.

Cercospora (Cercospora) fruit and leaf spotting: disease-causing: cercosporapunicae fungus. On the leaves of the markings, the spots are of different sizes unevenly reddish brown with a yellow border and are present in several or large quantities. These spots are usually not sticky. Small, round, black spots appear on the Flower Cup. Fruit spots on the shell, on the other hand, appear black, small, and round. The spots on the fruit look like bacterial burn wounds, but are darker black, individually, of different sizes, without cracks and non-stick. When the spots grow and grow larger, they are unevenly round in shape and give the fruits an inconspicuous appearance.

Anti-disease measures: the disease-causing fungus lives on plant residues and infected bark parts. This is propagated by wind-induced conidia (spores). The disease spreads rapidly during rainy seasons with high humidity. Infected fruits are recommended to be picked and removed from the garden and destroyed.

Anthrocnose Disease: Disease causative agent: Colletotrichum gloeosporioides fungus symptoms: the disease is manifested by dull spots of various sizes on leaves, stems, fruits or flowers. Damaged leaves turn yellow and shed. Pomegranate fruit tends to get sick at all stages of its development. Spots on the fruits before round later develop in an uneven form, from Brown to dark brown, and partially or completely dull spots cover the fruit.
Symptoms of the disease manifest only when the fruit is ripe. The disease is exacerbated by September-October when the humidity is high and the temperature is 20-27ºC. Measures to combat the disease chemical control of the disease after the period of picking does not work much, for this reason it is very important to take control of anthrocnose disease and other similar diseases before harvesting. In this way, it is possible to limit the transition of the disease from the field to the post-harvest period (storage process).

Rot as a result of bacterial burns: Causativee agent of the disease: Xanthomonasaxonopodispv. signs of punicae bacteria are manifested in the appearance of spots on the leaves and fruit, rot(cancer) on the stems, branches, and on the trunk of a tree. The disease damages all parts of the plant and forms small, dark brown, flat-uneven watery wounds on the leaves, fruit. Around the shoots on the stem, the disease develops in the form of Brown and black spots. The disease developinig in the upper stages causes the bark of the branches to bark and crack, as a result of which they break. On the leaves, on the other hand, the disease begins with the appearance of small, uneven, watery spots measuring 2 to 5mm and necrotic spots in the form of a bump during the period of exacerbation of the disease, watery wounds cause premature leaf shedding. Burn wounds on fruits are characterized by the formation of small cracks, even at the initial stages. These wounds combine to cause the fruit to crack and develop secondary infections (blue mold).

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Damaged stems and branches dry out and break. During the advanced stages of infection, the development of rot (cancer) occurs on the main stem and branches. Bacterial burns can also live at temperatures of 9-43◦C and lower humidity, but infection is more severe under high humidity conditions (>80%) and moderate temperatures (25-35◦c). The disease spreads to healthy plants through wind-blown rain and through freshly cut branches. Measures to combat the disease try to choose a seedling that is not damaged by the disease. Bordeaux (1.0%). use its liquid. Treat trees with a mixture of copper oxychloride (0.25%) with streptocycline (0.025%) or carbendazim (0.15%) with a break of 15 days from the period of leaf release 5-6 times. If possible, it is recommended to apply Bordeaux (10%) paste to the cut ends of the branches.[3]

Aspergillus (Aspergillus) fruit rot: causative agent: Aspergillusniger fungus symptoms Aspergill niger (Aspergillusniger) is a rot found in various fruits and is known as a wound (wound) causative disease. In fruits, discoloration begins at the tip of the inflorescence and on the surface of the fruit. The damaged fruit is usually slightly discolored, light red in color and changes from yellow to brown red. The disease is distinguished by the rupture of the peel of the fruit, and these cracks call a secondary infection when the fruits are stored at a warm temperature. Rot passes through the Shell and also acts on pomegranate seeds and is dark gray, brown black in color but not watery. Aspergillous rot infection occurs during flowering and early fruit development following garden rains. The fungal Alternia continues to develop inside the fruit without any external signs, such as fruit rot. The proliferation of fungi is caused by cracks and wounds that can occur in the fruit due to insect gnawing, bird droppings, sunburn or other effects. For this reason, fruit rot (Yerwinia sp.) bacteria and (Saccharomycessp.) may continue to develop under the influence of irritable infections.

Fight casality: due to the fact that the crown of the fruit protects the flower tissue, the use of chemical preparations before harvest is ineffective. Effective garden management practices such as dust control and field sanitation (removal of old fruits and dry branches) can help reduce disease progression before and after harvest. Worms and leaf rodent beetles that feed on the fruit feed on the fruit, leaving scars on it, and the disease can develop through these scars. Damaged but healthy looking fruits can be lowered to the ground during harvest using slow shaking of the tree. Be careful not to stress the tree from water shortages and water more than necessary as this can cause the fruit to crack. Sorting and sorting pomegranate fruits that have cracked and lost their color into qualities will help prevent possible diseases after packaging.

Gray mold appearance rot blue green mold during fruit preservation period: disease trigger: symptoms of various types of Penicillium fungus Penicillium is a wound-provoking fungus, Botrytis cinerea and C. When Garnet is compared with fungi, it cannot attack the entire healthy tissue of the Flower Bowl. The disease can develop by penetrating through wounds or wounds on the pomegranate fruit, however, the fact that the disease

[3] O'simliklar himoyasi" to'plami Anor o'simligi zararli organizmlariga qarshi kurash 33-kitob

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completely covers the surface of the fruit occurs on the surface of worn tissues. During the period of picking and its transportation, a small injury to the skin of the fruit creates favorable conditions for the development of infection. Blue mold can sometimes be observed in fruits in the field, but it mainly appears during the period of fruit storage. The first signs are manifested in the form of wounds on the outer surface of the fruit, from which water accumulates. Later, Green and blue green powdery mold forms on the surface of the wounds. When the diseased areas of the fruit are cut, the underside of the shell is black or gray. At an advanced stage of the disease, the affected pomegranate seeds turn into a juicy chicory. Favorable conditions for the development of the disease are a temperature of 21-25°C and a high level of humidity. Combating disease such as dust control and garden sanitation (removing old fruits and dry branches), garden management practices can help prevent the appearance of disease. Be careful with insect damage and mechanical damage to the fruit. When working with fruits (harvesting, sorting, packaging and storage), try not to injure them as much as possible. Proper storage of pomegranate fruits will help prevent them from rotting. Pomegranate fruits can be stored efficiently at a temperature of 5°C for 2 months after picking and 7°C for more than 2 months. It is recommended to store fruits in conditions of an average humidity of 90 - 95%. If the fruits are stored for more than 3 months, a special storage environment is required in which the atmosphere is controlled in the case of 5% oxygen and 15% dixide carbon.

Fight Disease: Control (same as Alternaria): it is recommended to apply copper chloride fungicides from the flowering period until the fruit reaches the size of the funduk, that is, until it acquires a volume of 1-3. This practice is continued until the fruit reaches half its size. The damaged fruits on the tree should be picked and removed from the garden. By giving shape to the trees, it is necessary to ensure wind circulation between the tree and in the garden.

Conclusions

The cultivation of fruits of the pomegranate crop is a requirement of the period of further expansion of their fields, effective use of them through the proper organization of agrotechnics and labor in existing gardens, study of pomegranate diseases, organization and improvement of the fight against them.

1. The method of scientific research from Phytopathology-teaches measures for the correct diagnosis of diseases and the fight against them.
2. In Phytopathology, the terms" observation "and" experiment " are used when conducting research factors that are considered to be.
3. The use of various methods in research from Phytopathology is an important factor in diagnosing diseases.
4. External signs of the disease are the main indications in the diagnosis.
5. Experience is a decisive method in determining the diagnosis of the disease.

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