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EFFECTS OF FUNGICIDES USED AGAINST LOCAL TREES (SPREAD, DAMAGE)

Abdurahimov O'rol Aliboyevich[1], R.K. Sattarova[2], S.E. Avazov [3], E.A. Xolmuradov[4]

[1]Masters Student at Tashkent State Agrarian University
[2] Professor at Tashkent State Agrarian University
[3] Professor at Tashkent State Agrarian University
[4] Professor at Tashkent State Agrarian University

----------ABSTRACT----------

The article provides information on the spread of powdery mildew disease, development of the disease and the damage it causes to crops . Also against powdery mildew Titul (0.02% concentration), Colossal Pro (0.03%), Alto Super (0.03%), Falcon (0.035%), Flutriful (0.03%), and Bordeaux liquid (0.5%) **fungicides were used.**

KEYWORDS: ***ornamental trees , false chestnut, common oak, magnolia, shumtol , flour -dew , disease, fungus, spread of disease, damage, fungicide, biological efficiency, yield.----------***

INTRODUCTION

Today, in the developed countries of the world, Italy, Germany, France, the USA, China, and the CIS countries, the main fungal diseases (rust, powdery mildew, root rot, septoria, alternaria, fusarium, spotting, etc.) of ornamental trees, biological characteristics, Much attention is being paid to studying the spread and damage and developing effective methods of combating them on a scientific basis. Implementation of the results of the ongoing scientific research into practice is one of the urgent tasks of today. For this reason, it is necessary to develop an ecologically safe, effective and scientifically based system of combating widespread and dangerous diseases based on the study of species composition, bioecological characteristics, spread, and damage of diseases.

Volume I of the monograph "Flora gribov Uzbekistana" belonging to the department *Ascomycota was created* based on the collection of data on powdery mildew fungi by scientists . Sorokin was the first to study representatives of the *Ascomycota division in the* territory of Uzbekistan . The research conducted for the study of representatives of the *Basidiomycota section in the* territory of Uzbekistan is reflected in the III and IV volumes of "Flora gribov Uzbekistana" dedicated to the *Basidiomycota section* [1].

26 types of powdery mildew fungi have been found in the newly established forests on the banks of the Don River in Russia. Among them, the most common categories are; *Podoshpaera* (8 species, 16.3%), *Phyllactinia* (3 species, 6%), *Leveillula* , *Neoerysiphe* , *Sawadaea* (2 species, 4.1%). It is noted that these species are *Fraxinus* , *Ulmus* , *Acer* , *Rosa, Grataegus* [2].

Studies were conducted on the degradation process of Shumtol. In the course of the researches, it was first noted that obligate parasites include powdery mildew, numerous rickets, and various necrotic diseases from facultative parasites. Obligate and facultative parasites actively participate in the process of plant degradation . False trutoviks are more important than obligate parasites. The main part of the degradation process is related to the development of false trutoviks. At the final stage of the degradation process, the importance of soprotrophs is high, and the process is completed with their participation [3].

MATERIALS AND METHODS

Theoretical research on the topic of research during 2017-2021. It was carried out at the state forest production enterprise "Saksonota" under the State Committee of Forestry and at the scientific-research and training station of the "Darkhan" experimental farm of the Forestry Research Institute.

Solid nutrient media and a moisture chamber were used to separate pure cultures of disease-causing fungi from infected specimens of landscape trees [4].

Microscopes MIKMED-5, Optika B-292PLI, NiB-100 were used to identify disease-causing fungi isolated from plants .

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In determining the types of pathogenic fungi A.A. Hekkelyaiy, N.I. Vasilevsky, K.D. Karakulin, BBUlyanishev, N.M. Pidoplichko, T.A. Dobrozrakova et al., M.A. Litvinov, MBellis, N.I. Gaponenko, Z Determinants of M. Azbukina and others were used.

Scenic trees against powdery mildew Titul (0.02% concentration), Colossal Pro (0.03%), Alto Super (0.03%), Falcon (0.035%), Flutriful (0.03%), and Bordeaux liquid (0.5%) fungicides were used.

Calculation of the effectiveness of fungicides was carried out based on methodological instructions "Metodicheskie ukazaniya..." (Khujaev Sh.T. 2004) . Statistical analysis of research results was carried out by the method of BA Dospekhov (1985). The growths of cleistothecia are well located.

Among the diseases of ornamental trees in Shumtol, powdery mildew is widespread and can be found in large numbers in the summer season. During this period, the sac stages of fungi can also be observed. Strong development of the disease was noted in June-July.

RESULTS AND DISCUSSION

If we pay attention to the bioecological characteristics of powdery mildew diseases in our conditions, canidial sporulation (anamorph) of fungi occurs in summer, and teleomorph occurs at the end of the plant growing season.

The development of powdery mildew fungi in the conditions of Uzbekistan is similar to other regions of Central Asia (Gaponenko et al., 1983). Mushroom development begins in mid-May. In this, the anamorphic stage appears, which causes their spread and damage. In the course of the research, it was noted that among the representatives of this group, representatives of *Microsphaera* , *Uncinula* and *Phyllactinia* groups are more frequent, while *Erisiphe* group is relatively rare.

The fungus infects the leaves and stems of plants. The disease occurs in open fields. The disease produces a thin layer of white or gray mold on the upper and lower surfaces of the leaves. Later, the fruiting body of the fungus - cleistothecium - appears on top of them. They are brown or dark in color. Severely infected leaves curl upwards and dry up. Such dusts are formed in leaf bands, petals and fruits. When K honey becomes strong, the plants completely wither and die.

The mycelium of the fungus is well developed, multicellular.

Cleistothecia are round with a diameter of 7.5-13.5 µm. The growths are simple oblong, colorless, 6-13 bags are located inside the cleistothecia. Each pouch makes 2 pouches. They are almost round, sometimes elliptical, 18-29x7-25 µm.

Sphaerotheca fuliginea Poll. On the lower surface of the leaves of the infected plant, well-developed pinkish-gray powders are formed. On top of them, cleistothecia with a diameter of 72-96 µm appear in the fruiting body of the fungus. The growths are light-brown, curved-buggy, 43 µm long. Each cleistothecium contains 1 sac. They are round, yellowish 54-80x45-57 µm. Inside the bags are 4-8 oval-shaped colorless bags. 53-68 µm in diameter.

Powdery mildew disease of common oak – *Microsphaera alphitoides* Griff. et Maubl. The fungus mostly infects oak trees imported from Europe (black oak, common oak, mountain oak) and maple seedlings, and black birch from North America. It infects false chestnuts and other chestnuts less.

Leaves of trees are infected by vegetative mycelium (oidium) and cysts that overwinter in the buds of infected plants. Spores emerge from cleistothecium overwintering in shed plant debris. Conidia are the source of infection during the growing season. The first signs of the disease begin in the spring with the formation of thin mycelium on young leaves (see Fig. 1). The disease is evident in late June and early July. During this period, new leaves are infected due to sacs released from cleistothecium and conidia formed on infected leaves from the first bud.

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Figure 1. Powdery mildew disease of common oak - *Microsphaera alphitoides* Griff. et Maubl.

The intensity and speed of the disease depends on the source of infection. If a plant is infected with mycelium formed from a bud, it infects only the stem and leaves that have grown from this bud. Haltaspora infects more and mainly the lower leaves.

Individual cleistothecia can be blown long distances by the wind. Conidia infect the leaves more strongly, because their formation occurs during the growing season, and they are dispersed by the wind over a distance of more than 100 meters. Spores and conidia of fungi grow faster when there is water droplets (rain, dew) on the leaves, they can also grow in humid weather.

Cleistothecia are visible to the naked eye. They hibernate in fallen leaves in winter. Spores fly in May and June.

Cleistothecia are produced annually, but do not mature in cold, wet weather. Dry, sunny air has a good effect on the formation of conidia.

The fungus develops on young leaves and branches of seedlings. More damage in June and July. Mycelium is formed more in cold-shocked branches of plants. A very severe infection is observed in the small branches growing from the trunk of the common e man tree. Powdery mildew affects leaves and large trees,

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especially the new leaves that are formed after leaf-eating insects in early spring. After the leaves of infected plants are covered with mycelium , the assimilation of the plant decreases, it becomes wrinkled and sheds. This reduces the growth of newly growing young trees, changes the branches.

Infected plants cannot prepare for winter, so they become resistant to autumn frosts. Large trees become resistant to other pathogens, pests and adverse weather conditions. As a result, the trees dry up completely.

At present, powdery mildew is very common. It causes great damage to the plantations. Therefore, it is necessary to apply preventive and other protective measures against it.

Table 1

Normal sprouts damage by powdery mildew

2021-2022

Economy	Development of powdery mildew disease in ordinary eman trees during the season,%									
Saxonota forest production enterprise	**In 2021**									
	11.04	*21.04*	*1.05*	*11.05*	*21.05*	*1.06*	*11.07*	*21.07*	*1.08*	*11.08*
	5.8	18.2	27.9	35.3	41.7	38.9	33.2	32.9	32.8	1.4
	In 2022									
	11.04	*21.04*	*1.05*	*11.05*	*21.05*	*1.06*	*11.06*	*21.06*	*1.07*	*11.07*
	2.3	15.0	19.3	22.1	30.2	35.9	41.8	46.3	42.1	37.9

In the first and second ten days of April 2020, 5.8-18.2% of common oak seedlings were affected by powdery mildew, 27.9-41.7% in July, and 46.3% by the end of June. 2.3-15.0% damage was observed in the first and second ten days of April 2021, 35.9-46.3% in June, and 37.9% by the end of July (see Table 1).

Based on the obtained results, it was observed that powdery mildew disease in common oak seedlings starts from April and increases until the end of the development of the seedlings.

Landscape trees are affected by various forms of powdery mildew caused by various fungi during the growing season. Naturally, if these are not fought against, the disease will worsen: the leaves and stems begin to turn yellow, some of them will fall off; the plant lags behind in development, becomes invisible. Therefore, to avoid this, it is necessary to have an effective fungicide list.

In 2020-2021, we tested a number of fungicides selected from the "List" against powdery mildew spread on young decorative false chestnut, common oak and magnolia trees located on the territory of the Darkhan experimental farm. The works were prepared and sprayed with a working solution with the help of hanging motorized hand sprayers, using 900 l/ha of water per hectare based on calculations. Computational control work was carried out for 18 days after spraying the drug.

The results obtained against powdery mildew are presented in Table 2. As it can be seen from there, fungicides with anti-powdery mildew on false chestnut and magnolia trees were especially effective and did not lag behind the template version: Titul (0.02% concentration), Colossal Pro (0.03%), Alto Super (0.03 %), Falcon (0.035%), Flutriful (0.03%), and Bordeaux liquid (0.5%).

CONCLUSION

The results obtained against powdery mildew on false chestnut and magnolia trees showed particularly high effectiveness of fungicides against powdery mildew and did not lag behind the model version: Titul (0.02% concentration), Colossal Pro (0.03%), Alto Super (0 .03%), Falcon (0.035%), Flutriful (0.03%), and Bordeaux liquid (0.5%).

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