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PHYTOSANITARY CONTROL OF VINEYARDS IN THE SYRDARYA REGION OF THE REPUBLIC OF UZBEKISTAN

Introduction. Large-scale research is being conducted around the world to improve agrobiotechnology for growing grapes. In these studies, much attention is paid to ensuring moderate growth of the grape plant and protecting it from various microbiological diseases and pests by determining the composition and types of microorganisms in the rhizosphere, phyllosphere and endosphere of the grape plant, as well as determining their natural activity [1].

In our republic, especially after gaining independence, certain scientific results are achieved in the fight against microbiological diseases and various harmful insects that have a great impact on the productivity of grape vines, due to the widespread

introduction of modern agrobiotechnology in the cultivation of grapes [2]. Among the diseases that scientists in our country encounter when growing grapes are oidium or powdery mildew (*Uncinula necator*), anthracnose (*Gloeosporium ampelophagum*), cercospora leaf spot (*Cercospora vitis*), gray rot (*Botrytis cinerea*), black rot (*Phoma lenticularis*), scaly necrosis (*Rhacodiella vitis*), bacterial cancer (*Bacterium tumefaciens*). Extensive scientific research has been conducted on diseases of the root collar of grapes and it has been noted that the productivity of the vine decreases by 25-70% as a result of these diseases [3]. Also in recent years, it has been predicted that mildew disease (Plasmopara viticola) could cause serious damage to vineyards. Various pests and microbiological diseases of agricultural crops, including Uncinula necator, Gloeosporium ampelophagum, Cercospora vitis, Botrytis cinerea, Phoma lenticularis, Rhacodiella vitis, Bacterium tumefaciens, vineyard diseases on the protection of vineyards and measures to combat them, including research work to determine the dynamics of fusarium fungi in vineyards and the development of biological protection against them have not been carried out.

Therefore, monitoring the dynamics of the spread of fusarium diseases in vineyards and implementing measures to combat fungal diseases in vineyards using biological preparations are of great scientific and practical importance.

Aim of the study. Задачи исследования являются изучение динамики распространения фузариозных явлений на виноградниках Сырдарьинской области Республики Узбекистан.

Research methods. The scientific research used methods of mycological and microbiological screening, determination of antifungal activity, phytosanitary control in vineyards [4].

Main results. Conducted phytosanitary control of vineyards of the Syrdarya region and the results of studies of endophytic and rhizosphere microorganisms related to grape varieties. In particular, during phytosanitary control as of June 2020 of vineyards of 13 farms specializing in horticulture and viticulture in the Syrdarya region, the areas infected with signs of fungal diseases amounted to 22.33%. Based on the results of phytosanitary analyses and phenological observations, it was established that 31 seven-year-old and 21 fifteen-year-old muscat grape vines showed no signs of fungal disease. The least affected grape varieties also include Charos, Red Khusaini, Chilgi, Vinny, and Black Chillaki. The grape varieties with the most frequent signs of fungal disease were the following: Husayni (5-year-old - 46.43%, seven-year-old - 36.36%), Toifi (two-year-old - 37.50%, four-year-old - 26.47%), five-year-old - 41.94%, fifteen-year-old - 32.41%), Rizamat (two-year-old - 32.14%, five-year-old - 42.11%, seven-year-old - 32.20%). During observations of 47 vines of the 10-year-old Rizamat variety only 4 vines, 8.51% showed signs of fungal disease. It was concluded that fungal diseases had begun to develop in this vineyard. Based on the mycological analysis, mycological samples were taken and analyzed from the stem and leaf of the grapevine as a single object and from the soil of the grapevine growing area. In mycological analysis, it was noted that the number of isolates recovered from the leaves and stems of grapes was 22.04% less than the number of isolates found in the soil. During the study, it was noted that 28.26% of the isolates were found in the leaves and stems of Khusaini grapes, and 71.74% in the soil. The

analysis showed that the Toifi grape variety contained 16.14% more in the leaves and stems of plants than in the soil. The same situation was observed in the Rizamat grape variety, and it was found that isolates were found 7.16% more often in leaves and stems than in soil. The studies were conducted on 46 isolates obtained from plant organs, out of a total of 105 isolates obtained during the studies. The fungal isolates obtained from diseased plant organs were cultured on various nutrient media and classified by the morphology of growth colonies, mycelium, macro- and microconidia under a microscope. Based on mycological analysis, 46 isolates belonging to 6 orders were isolated. Fusarium was noted as the dominant micromycete (37%), and fungi belonging to other genera were found in the following order: Aspergillus (15.2%), Alternaria alternata (10.9%), Trichoderma (15.2%), Rhizoctonia (13.0%), Botrytis cinerea (4.3%). It was also noted that 2 isolates were bacterial isolates (4.3%). The bacterial isolates were isolated from the genus Toifi and were found to belong to the genus Streptomyces (No. 7). The proportion of isolates belonging to the genus Fusarium was also determined in the species section: although they were found to belong to the species F.oxysporium, F.solani, F.culmorum, F. poae, it was not possible to determine the type 11 isolates based on morphocultural and some biochemical tests. The Koch triad method was used to determine the effect of 6 strains of Fusarium species and 11 isolates belonging to an unknown species on the development of grapevine during the development of primary seedlings. It was shown that, based on 11 isolates (No. 7-17) belonging to an unknown species, the degree of damage to grape cuttings with signs of fusarium disease was found to be different. The Fusarium poae strain and the Fusarium spp. isolate No. 68T of unknown type did not cause any symptoms of the disease.

Conclusions. The dynamics of the spread of fungal and bacterial diseases in the vineyards of the Syrdarya region depending on the vine varieties, as well as the resistance of vines to fungal diseases depending on the varieties were determined. According to the dynamics of the spread of fungal diseases in the vineyards of the Syrdarya region, the most affected varieties are Khusaini (five-year-olds - 46.43%, seven-year-olds - 36.36), Toifi (two-year-olds - 37.50%, four-year-olds - 26.47%, five-year-olds - 41.94%, fifteen-year-olds - 32.41%) and Rizamat (two-year-olds - 59.68%, five-year-olds - 42.11%, seven-year-olds - 32.20%), 31 seven-year-old and 21 fifteen-year-old Muscat vines had no signs of fungal disease. It was established that the isolates belonging to the Fusarium family belong to the species F.oxysporium, F.solani, F.culmorum, F.poae, F.proliferatum, according to the prevalence of fungi Fusarium (37%), Aspergillus (15.2%), Alternaria alternat (10.9%), Trichoderma (15.2%), Rhizoctonia (13.0%) and Botrytis cinerea (4.3%).

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АГРОТЕХНИЧЕСКИЕ ПОДХОДЫ К ВЫРАЩИВАНИЮ ЛЕКАРСТВЕННЫХ РАСТЕНИЙ В УЗБЕКИСТАНЕ

В последние десятилетия наблюдается растущий интерес к использованию лекарственных растений в медицине, фармакологии и косметологии. В условиях мирового спроса на растительное сырье, обладающее лечебными свойствами, Узбекистан обладает уникальными природными условиями ии богатым биоразнообразием,имеет значительный потенциал для успешного развития отрасли выращивания лекарственных растений. Географическое положение страны, разнообразие климатических зон и почвенно-климатических условий создают благоприятные предпосылки для культивирования широкого спектра лекарственных растений, многие из которых имеют древние традиции использования в народной медицине региона.

Однако для достижения устойчивых результатов в производстве лекарственных растений необходимо разработать эффективные агротехнические методы, которые учитывают местные климатические особенности, особенности почвы, биологические требования и специфику отдельных видов растений, а также требования современного рынка. Оптимизация таких факторов, как выбор видов и форм растений, схемы посева, особенности ухода и защиты растений от вредителей и болезней, может существенно повысить качество и количество производимого сырья.

Разработка агротехнологию выращивания лекарственных растений является одной из ключевых задач для устойчивого развития сельского хозяйства, особенно в условиях меняющегося климата и растущей потребности в натуральных продуктах медицинского и косметического назначения. Правильный подбор агротехнических приемов может значительно повысить урожайность и качество сырья, что в конечном итоге влияет на экономическую