Diseases of melon in the central areas of Uzbekistan

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Abstract. This article offers comprehensive insights into the diseases that afflict melon crops, elucidating the factors that trigger these ailments, and proposing strategies to effectively combat them. The research entails a combination of open-field experiments and controlled small-scale trials conducted in lysimeters across diverse regions including Tashkent, Syrdarya, Jizzakh, and central areas of Uzbekistan. The outcomes of the study reveal the isolation of four distinct disease-causing fungi across a total of five melon varieties. In laboratory settings, the research delves into the efficacy of seed-repellent fungicides through Petri dish experiments, discerning highly efficient formulations. The selected fungicides exhibit promising potential in mitigating pathogenic effects. To validate these findings in practical settings, the selected fungicides were applied to seeds and tested through field cultivation. This multifaceted approach demonstrates a commitment to addressing melon diseases at both theoretical and practical levels. The article's value is further augmented by visual aids, including an image and a table, which succinctly illustrate the findings derived from the research. By integrating theoretical insights, experimental validation, and visual representations, the article provides a comprehensive understanding of melon disease management. The presented strategies and findings are poised to contribute significantly to enhancing the resilience and productivity of melon crops in the studied regions.
Keywords. Syrdarya, Jizzakh, Tashkent, varieties, melon, fusarium sp, alternariacucumerina, macrosporium.

1 Introduction

In the subtropical and temperate climate regions across the globe, a substantial expanse of 6.2 million hectares has been dedicated to the cultivation of field crops. This concerted effort has yielded an impressive harvest, resulting in the production of a staggering 142.4 million tons [1, 2].

Among these regions, several countries stand out as pivotal contributors to the global pulse production landscape. Leading the pack is China, renowned for its substantial pulse cultivation [3]. Turkey, India, the United States, Iran, Egypt, and Spain also hold significant positions in the roster of top pulse-producing nations. These countries collectively play a vital

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role in satisfying the global demand for pulses, a crucial source of nutrition and sustenance for countless communities worldwide [4].

The beloved melon plant, cherished by our community, falls prey to a range of fungal, bacterial, and viral afflictions. These diseases inflict a harsh toll on the plant's yield and quality, resulting in diminished productivity and compromised product standards [5]. Over subsequent years, the escalating incidence of these diseases further exacerbates the decline in productivity and quality [6].

In a bid to address this critical issue, scientific inquiry was conducted across various locations, including the experimental field of the Research Institute for Quarantine and Plant Protection in the Tashkent region, Qibray district, and farms in the Syrdarya and Jizzakh regions [7]. The focus was the exploration of fungal presence on melon plants within fields planted during the 2022 season [8].

At the core of this research lies the quest to uncover the efficacy of specific seed treatments in combating the pervasive fungal diseases that currently plague melon cultivation [9]. These diseases stand as a paramount concern for melon growers. The experimental approach encompassed four cycles with four distinct variations [10].

Through this comprehensive study, researchers aim to shed light on potential solutions to the fungal diseases ailing melon plants. By evaluating the effectiveness of various seed treatments, the research offers a promising pathway towards bolstering the resilience and productivity of melon crops [11-13]. The four iterations of the experiment underscore the rigor and thoroughness applied in the quest to mitigate the impact of fungal diseases on this cherished crop.

2 Materials and methods

In order to monitor the diseases of the melon crop, plants of the melon, planted areas of the Syrdarya and Jizzakh regions were monitored from may to September 2022. Research methods have been used in laboratory and field conditions to assess the diseases detected in melon in laboratory conditions, as well as to apply measures to effectively combat them.

From plants infected with disease-causing fungi in laboratory conditions, potatoes agaric and separated on the basis of her style in the identification of diseases and causative fungi. Fungi that identified symptoms of the disease in early, middle and late maturedvarieties of melon were studied from April 2023 on the effects of preparations used in pre-sowing medicinal preparation of melon seeds.

The cup was planted in the middle part of the fungi identified in the melon in the petri saucer, that is, having planted the fungus found in our prepared nutrient medium, next to which the melon seeds were planted in five pieces. Our research will take 2 months. Month 1 consists of extracting a seed repellent that affects melon diseases under laboratory conditions, while month 2 consists of planting the most effective selected seed repellent-dosed melon Urus in a lysemetric and field experimental area.

In the 1st month, sown fungi are observed, and each seed is taken into account the process of influencing the drinkers. The effects of testing seed drugs on fungal diseases identified in the melon crop have been studied.

3 Results and discussion

The research was mainly carried out on the fields planted with melons in Syrdarya, Jizzakh and Tashkent regions from the central regions of Uzbekistan from may to October 2021-2022. In the course of research, the degree of disease incidence of early matured melon

varieties, external signs of diseases and at what period of vegetation the disease is widely damaged was studied (Table 1).

Table 1. Analysis of samples of infected field crops brought from the Jizzakh and Syrdarya regions of Uzbekistan.

Sampling location	**Type**	**Field**	**Detected diseases**	**Disease triggers**
Jizzakh region, Mirzachul district “Ko’hnur” farm	“Shakar palak” melon	2,5	Fusarium dry, Erysiphe cichoracearum, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveumErysiphe cichoracearum Dc. F. cucurbitacearum,Sporodesmium mucosum Sacc.var.pluriseptatum Karst.
Jizzakh region, Mirzachul district “Ko’hnur” farm	“Obi novvot” melon	2,5	Fusarium dry, Erysiphe cichoracearum, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveum Erysiphe cichoracearum Dc. F. cucurbitacearum, Sporodesmium mucosum Sacc.var.pluriseptatum Karst.
Jizzakh region, Do’stlik district “Obidjon ota” farm	“Obi novvot” melon	0,9	Sporodesmium mucosum	Sporodes miummucosum Sacc.var.pluriseptatum Karst.
Syrdarya region, Mirobod district “Mirobod yuldizi” farm	“Amri” melon	0,3	Fusarium dry, Anthracnose	Fusarium oxysporumf.sp. niveum,Colletotrichumlagenarium E. et H.
Sirdaryo region, Oq oltin district “Temiryo’l agro sanoat” UK	“Kukcha” melon	2,3	Fusarium dry, Erysiphe cichoracearum, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveum, Erysiphe cichoracearum Dc. F. cucurbitacearum, Sporodesmium mucosum Sacc.var.pluriseptatum Karst.
Syrdarya region, Oq oltin district “Temiryo’l agro sanoat” UK	“Oq urug” melon	6,8	Fusarium dry, Erysiphe cichoracearum, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveum, Erysiphe cichoracearum Dc. F. cucurbitacearum, Sporodesmium mucosum Sacc.var.pluriseptatum Karst.
Syrdarya region, Mirobod district “Mirobod yuldizi” f/x	“Obi novvot” melon	1,9	Fusarium dry, Erysiphe cichoracearum, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveum, Erysiphe cichoracearum Dc. F. cucurbitacearum, Sporodesmium mucosum Sacc.var.pluriseptatum Karst.
Jizzakh region, Dustlik district “Obidjon ota” f/x	“Kampir chopon” melon	0.3	Fusarium dry, Sporodesmium mucosum	Fusarium oxysporum f.sp. niveum Sporodesmium mucosum Sacc.var.pluriseptatum Karst.

In Table 1, in Mirzachul district “Kuxnur” Farm of Jizzakh region, in the early matured Shakarpalak and Obi novvot varieties of melon, fuzariose wilt-Fusarium oxysporum f.sp. niveum and flour dew-Erysiphe Cichoracearum Dc. F. cucurbitacearum and brown spotting in the friendship district “Obidjon ota” farm of the Jizzakh region-Sporodesmium mucosum Sacc.var.pluriseptatum Karst. diagnosed diseases (Figure 1).

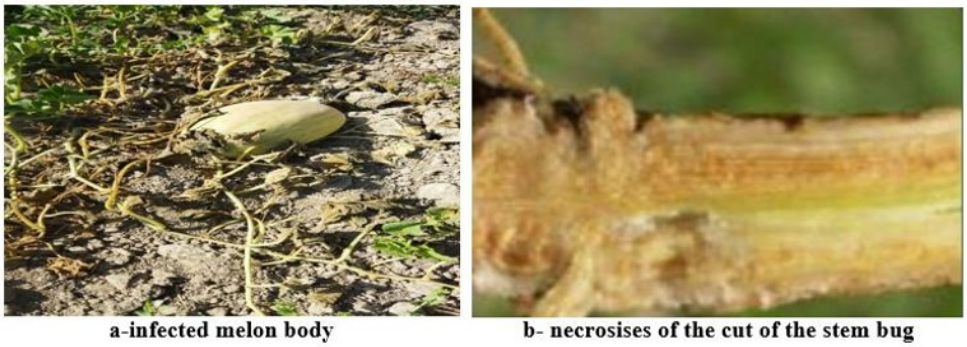

Figure 1. Fuzarious wilting disease of the melon.

In mirabad district “Mirabad yuldizi” farm of Syrdarya region in the varieties of melon early matured Amri and Obi novvot Fusarious Salish-Fusarium oxysporum f.sp. niveum, Macrasporiasis-Macrosporium cucumerinum Ellis and anthracnose-Colletotrichum lagenarium E. et H. Diseases recorded (Figure 2).

Figure 2. Anthracnose and macrasporiasis desease of melon.

In the field of the White Gold District “Railway agro-industrial” UK of the Syrdarya region, macrasporiasis and fusarious wilting diseases were found in the mid-ripening blueberry and white seed varieties of melon.

In the “Obidjon ota” farm of the friendship District of the Jizzakh region, The Late “ Kampir chopon” variety of melon was found to have only fusarious wilting (Figure 3).

Figure 3. Fusarious of the late "Kampir chopon" variety of melon.

Since late matured was a variety, Erysiphe cichoracearum, macrosporiasis and anthrocnose diseases were not detected in this variety. During the growing season of the melon, samples were taken from plants with presented symptoms of the disease. The samples taken were taxied in laboratory conditions, and pure cultures of disease triggers were isolated (Figure 4).

These pictures show clear views of disease-causing microorgnaisms found during the growing season of melon.

Measures to solve melon diseases: to determine the species composition of the main disease-causing microorganisms found in melon in the fight against Melon diseases and to check the effective seeders for them in laboratory conditions is an important event. In the following research, disease-absorbing fungi in the root, stem, leaf and fruit of the melon were isolated and the effectiveness of seeders was checked against them. Maximurug, which adversely affected the development of pathogeninng with high efficiency, is used in drug suspension with a solution of 10 L per 1 T of grain, Seles top melon seeds are used in drug suspension, 12-15 L of solution per 1 t of grain in the drug suspension, 10 L of solution per 1 T of Raksil gold seed drug suspension chemical preparations were selected and used inSeed drinkers can be used in laboratory conditions to treat melon diseases (Figures 5, 6, and 7).

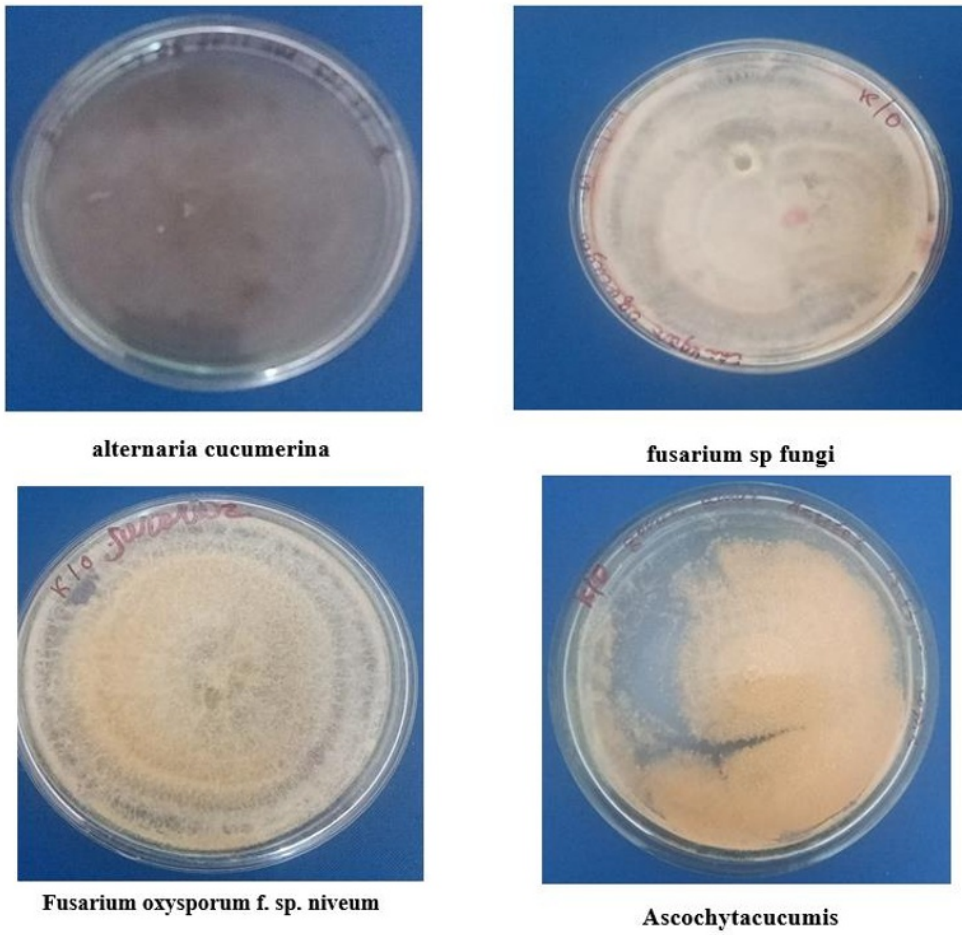

Figure 4. Clear views of disease-causing microorganisms in melon.

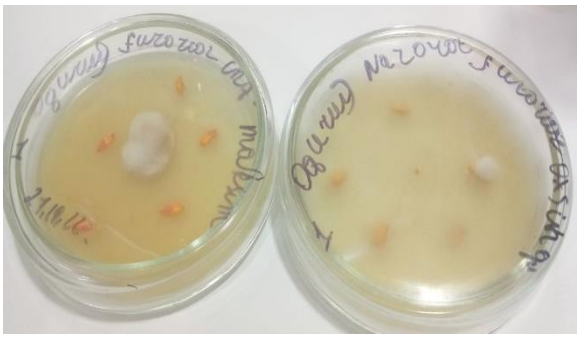

Figure 5. Control in front of the medicinal seeds with fusarium sp fungi and Maxim - planted in an artificial nutrient medium in the cup petri.

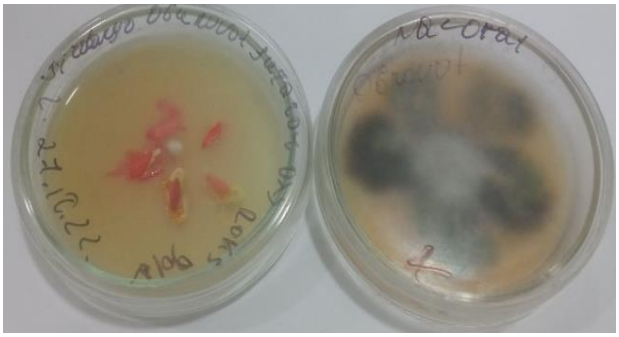

Figure 6. Cuppetriga controlled in front of the pollinated seeds with alternariacucumerina fungi and Seles top - planted in an artificial feed environment

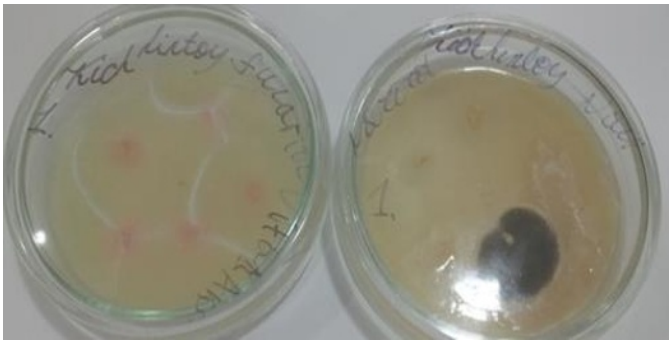

Figure 7. Control in front of the medicinal seeds with macrosporium fungi and Raxil - planted in the artificial nutrient medium of the cup petri.

In these pictures we can see the effectiveness of seed drugs used against diseases caused by the main fungi found in melon. The seed drugs tested in the experiment Maxim, Seles top, Raxil gold did not develop the fungi's pathogens and stopped their growth. The development of the disease in seeds planted for control can be seen in the picture and negatively affected its growth. Seeders with high efficiency were selected and planted in open fields and experimental fields with seed treatment on lysimeters. These fungicides protect seeds from soil patogens after sowing seeds in field conditions (Figures 8 and 9).

Figure 8. Process of processing seeds with medicinal preparations before planting in farm and lysemeter conditions.

Figure 9. Process of processing melon seeds with seed medicinal preparations in varietal cross section.

4 Conclusions

In conclusion, in obtaining a high and high-quality harvest of melon, the first thing to do is to choose high-quality and disease-resistant varieties;

Deep plowing of land from agrotechnical events and planting of crops within the established deadlines;

Before sowing seeds, MaximUrug from chemical and biological seeders is treated with a solution of 10 l per 1 t of grain in the drug suspension, Seles top melon seeds are treated with a solution of 12-15 l per 1 t of grain in the drug suspension, Raksil gold seeds are treated with a solution of 10 l per 1 t of grain in the drug suspension; during the growing period, it was recommended.

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