

Monitoring Soil Microflora Monoculture of Cotton Fields for Distribution Fusarium Wilt in Bukhara Region

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Abstract

The purpose of this study is to identify fungi on the basis of the data that in the Bukhara region. We have identified as *Mucor Mich.ex Fr.*, *Rhizoctonia*, *Cladosporium Link ex Fr.*, *Verticillium Link ex Fr.*, *Helminthosporium Link ex Fr.*, *Alternaria Nees ex Fr.*, *Trichoderma Pers.*, *Aspergillus Micheli ex Fr.*, *Penicillium Link ex Fr.*, *Fusarium Link et Fr.* Among the microorganisms identified by representatives, *Fusarium* fungi are the main agents of cotton diseases.

Keywords: Soil Microflora Monoculture etc.

Introduction

The implementation of the tasks of the agriculture of the Republic of Uzbekistan for further improvement of soil fertility and crop yields is very important and comprehensive study of the use of beneficial microorganisms.

Soil as a natural environment is characterized by a high density of population of various micro-organisms, as well as numerous representatives of microscopic fauna that perform different functions.

Along with other microorganisms living in soil fungi play great role in fertility. They are involved in the decomposition of organic matter, humic substances synthesis and in many other processes occurring in the soil.

It is obvious that the study of the activities of soil microflora requires accurate knowledge of its species composition, as well as an accurate representation of the soil and climatic and environmental conditions for its development and stockpiling.

Microbes - are potential antagonists of environmental factors in the development and formation of microbial cenoses.

Fusarium wilt is - a disease causing wilting and death of many cultivated and wild plants - a scourge of the modern crop production in most countries of the temperate and subtropical climates, both in the Northern

and Southern Hemispheres (Benken AA, Khokhryakov MC, V. Malinin M., 1974).

According to currently available data, the causative agent of fusarium wilt of cotton *Fusarium oxysporum* Schl. f. *vasinfectum* (Robin) Berk., is typical soil-forming root parasite, capable of long saprophytic existence in the conditions of the soil and the experience of it in the form of chlamydospores. Infectioning cotton by them, if not exception, in most cases starts through the plant roots (Z.E. Becker, Chadova J.S., 1971).

Studies G.Ya. Gubanova and N.I. Beredihinoy (1967) proved that the penetration of the fungus from the soil into the cotton enough for it to come into contact with plant roots.

Cotton growing republics of Central Asia during outbreaks epiphytotic wilt lose a large amount of harvest. Significantly reduced product quality. Therefore, Fusarium wilt for the past several decades is the subject of study of various specialists. With full confidence it can be argued that if it were not for the constant hard work of a large contingent of scientists of various countries, a number of crops could not be cultivated because of the defeat by wilt. These crops mainly include cotton, tomatoes, potatoes, etc. (Mirakhmedov SM 1977; Mirpulatova NS, 1974).

In determining the vegetation in soil samples collected in the period from the cotton fields of Bukhara region following generic composition of soil fungi were identified in 2015, presented in Table 1.

Table 1 Genera and species of the quantitative composition of fungies, identified from soil samples monoculture of cotton fields of Bukhara region

No	Type	Quantity of Sorts
1	<i>Mucor Mich.ex Fr.</i>	3
2	<i>Rhizoctonia</i>	1
3	<i>Cladosporium Link ex Fr.</i>	3
4	<i>Verticillium Link ex Fr.</i>	1
5	<i>Helminthosporium Link ex Fr.</i>	1
6	<i>Alternaria Nees ex Fr.</i>	2
7	<i>Trichoderma Pers</i>	2
8	<i>Aspergillus Micheli ex Fr.</i>	5
9	<i>Penicillium Link ex Fr.</i>	4
10	<i>Fusarium Link et Fr.</i>	11
Total:		33

Table 2 The results of analysis of soil microflora for farmers of three districts of Bukhara region

regions	Total fungi quantity in 1gr, soil	Including %				
		<i>Trichoderma</i>	<i>Penicillium</i>	<i>Aspergillus</i>	<i>Fusarium</i>	Other fungi types
Jondor	15,6	0	1,7	9,3	30,8	58,2
Bukhara	13,0	2,1	3,8	9,2	11,3	73,6
Romitan	8,6	0,0	2,0	8,7	25,5	63,8

According to the table there were determined 10 genera and 33 species of quantitative soil fungi identified from the cotton fields of Bukhara region. Very common of these pathogenic fungies are belong to genus *Fusarium*. At 10 cm of soil horizons to a depth of 30 cm allocated saprotrophic fungi *Aspergillus*, *Penicillium* 4-5 species. Also it allocated only 2 species of *Trichoderma* fungal antagonist (strains were not active). This indicates poor environmental condition of the soil with the corresponding biocoenosis fungi that exist in these fields.

To determine the extent of contamination and the spread of fusarium wilt of cotton were carried out and given data of mycological soil analyzes in three areas (Table. 2).

It shows that the most prevalent *Fusarium* in the soil was observed in Jondor District, reaching 30.8%, respectively, in Ramitan region - 25.5%, in Bukhara - 11.3% from the total number of fungi.

Conclusions

It can be concluded on the basis of the data that in the Bukhara region the degree of infection of cotton fields with *Fusarium* wilt is associated with pathogenic fungi that live in the topsoil. They identified the representatives of such genera as *Mucor Mich.ex Fr.*, *Rhizoctonia*, *Cladosporium Link ex Fr.*, *Verticillium Link ex Fr.*, *Helminthosporium Link ex Fr.*, *Alternaria Nees ex Fr.*,

Trichoderma Pers, *Aspergillus Micheli ex Fr.*, *Penicillium Link ex Fr.*, *Fusarium Link et Fr.* Among the microorganisms identified by representatives, *Fusarium* fungies are the main agents of cotton diseases.

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