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## Rhizosphere mycoflora from dry crop fields of *Sorghum* sp. (Jawar) in Dhule District (M.S. India)

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### ABSTRACT:

Present paper deals with fourteen species of fungi belong to seven genera. All the fungal species were isolated from agricultural field cultivated with dry crop *Sorghum* in Dhule District, during 2013-14. Among fourteen species *Aspergillus fumigates*, *Alternaria denissi*, *Fusarium oxysporum*, *Penicillium frequentans* and *Rhizopus nigricans* were occurred rarely. *Aspergillus flavus*, *Aspergillus niger*, *Absidia glauca*, *Alternaria cinerariae*, *Alternaria zinniae*, *Curvularia lunata*, *Curvularia tritici*, *Fusarium moniliformae* and *Penicillium chrysogenum* were occurred frequently.

**KEY WORDS:** Rhizosphere, *Sorghum*, Dhule.

### INTRODUCTION:

Rhizosphere is the region, extending a few millimetres from the surface of each root, where the microbial population of the soil is influenced by the chemical activities of the plant. The region provides the favourable conditions to increasing the mycoflora.

The term rhizosphere was introduced in 1904 by the German scientist Hiltner to denote the region of soil is under the influence of plant roots. The region provides specific conditions to increase the mycoflora in it, which is attributed to the rich food materials provided by root tissue and root exudates (Agnihotri, 1953).

Rhizosphere mycoflora of various crop fields were studied by Mehrotra and Kakkar (1972), vegetable mycoflora; Nishat Khalis and Manoharachary (1985), Groundnut mycoflora;. Recently Deshmukh et al. (2013) studies on sugarcane mycoflora Jalander and Mamatha (2015) studies on mycoflora of leguminous plants; Deshmukh and Shinde (2016) studies beneficial mycoflora; Madavi and Wadekar (2018) investigate rhizosphere mycoflora of some solanaceae members.

### MATERIALS AND METHODS:

Soil samples were collected from various localities in Dhule District like Shindkheda, Sakri and Shirpur regions. Five samples were collected from each *Sorghum* fields. The collected samples were pack in polythene bags and brought to laboratory. Isolation of rhizosphere fungi was carried on Czapek Dox Agar and PDA by soil dilution technique (Subba Rao, 2004). Serial dilution of soil samples were made up to 10<sup>5</sup>. Transfer 1 ml of suspension on culture media by pour plate method. Incubate the cultures at 25<sup>0</sup> C for 7 to 21 days in inverted positions.

ungal structures (Mycelium, Pycnidia, Soprodochia, Conidia, Spore etc.) were mount in lacto-phenol and stained with cotton blue. Identification of isolated fungi was done with the help of Monographs (Thom and Raper, 1945; Raper et.al 1949; Gilman, 1957; Booth, 1971; Tandon, 1968; Ellis, 1971, 1976; Subramanian, 1971; Nagamani et al. 2006; Tsuneo Watanabe, 2010) and other relevant literature.

## RESULTS AND DISCUSSION:

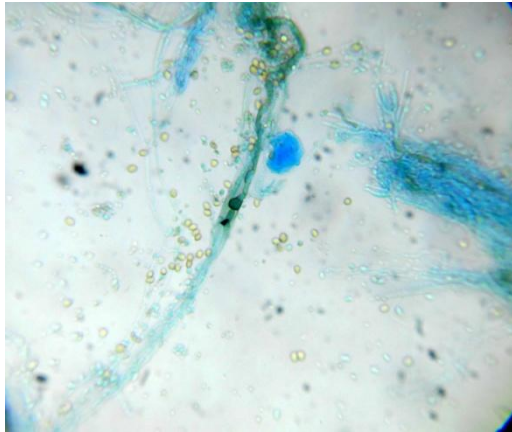
Table: 1 Showing Distribution of Fungi in *Sorghum* Fields of Dhule District:

Sr. No.	Fungus	Dhule	Sakri	Shindkheda	Shirpur
1	<i>Absidia glauca</i> Hagum	+	+	-	+
2	<i>Alternaria cinerariae</i> Hori and Enjoji	+	+	-	+
3	<i>Alternaria dennissi</i> Ellis	-	+	-	+
4	<i>Alternaria zinniae</i> Ellis	+	+	+	+
5	<i>Aspergillus flavus</i> Link	+	+	+	+
6	<i>Aspergillus fumigates</i> Fresenius	-	+	-	+
7	<i>Aspergillus niger</i> Van Tieghem	+	+	+	+
8	<i>Curvularia lunata</i> (Wakker) Boedijin	+	+	+	+
9	<i>Curvularia tritici</i> Kumae and Nema	+	+	-	+
10	<i>Fusarium moniliforme</i> Sheld.	+	+	+	+
11	<i>Fusarium oxysporum</i> Schlecht.	-	+	-	+
12	<i>Penicillium chrysogenum</i> Thom	+	+	+	+
13	<i>Penicillium frequentans</i> Westing	-	+	-	+
14	<i>Rhizopus nigricans</i> Ehrens	-	+	-	+

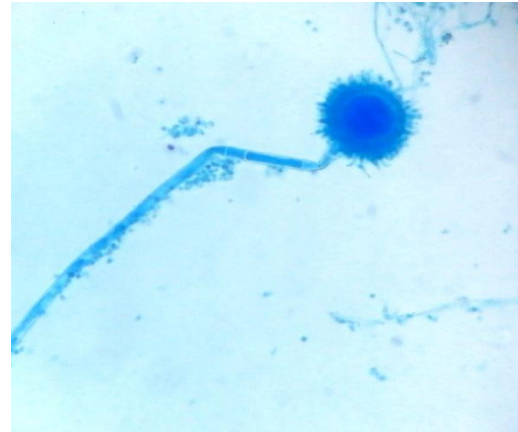
All the fungal species belongs to dueteromycotina. Fungal species abundantly occurred in Sakri and Shirpur region which has more irrigated part and rarely occurred in Dhule and Shindkheda region. The species of *Alternaria* and *Curvularia* further attach on ears and cause black spots on the grains.



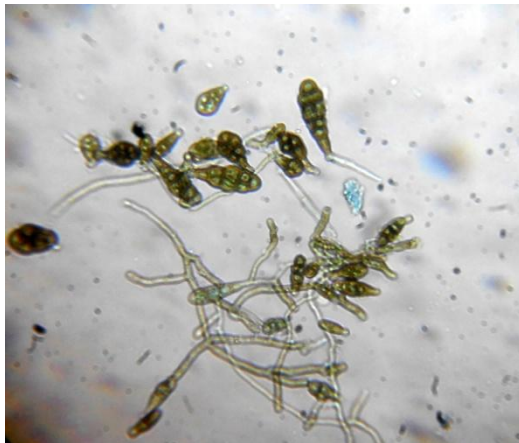
Fungal Colonies on PDA and Czapek-Dox Agar



*Absidia glauca* Hagum



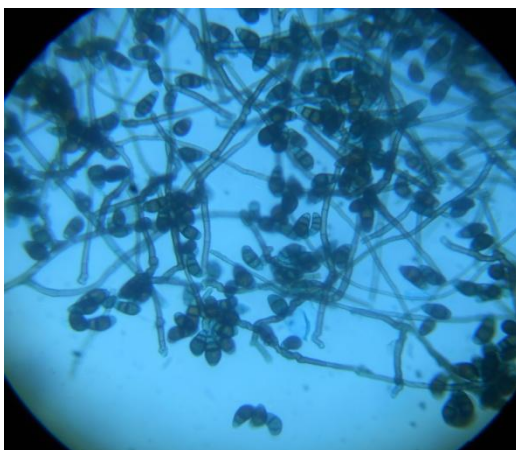
*Aspergillus flavus* Link



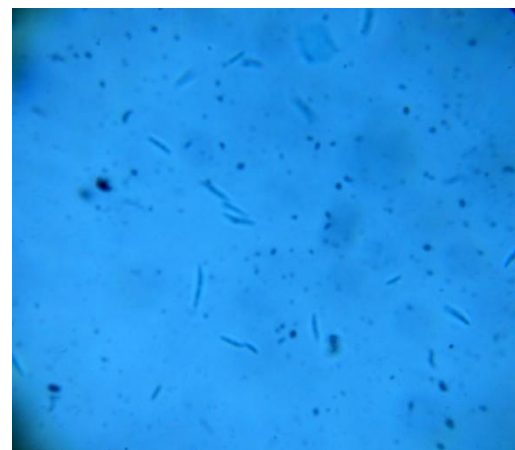
*Alternaria dennissi* Ellis



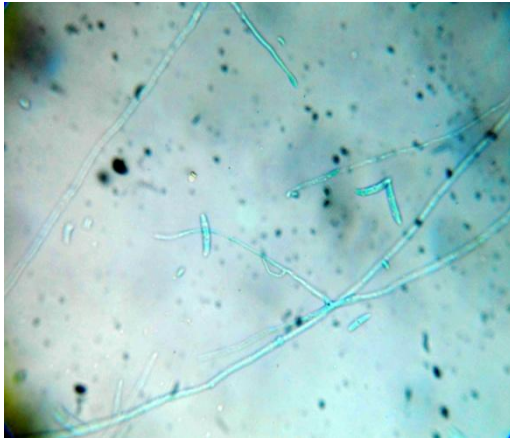
*Alternaria zinniae* Ellis



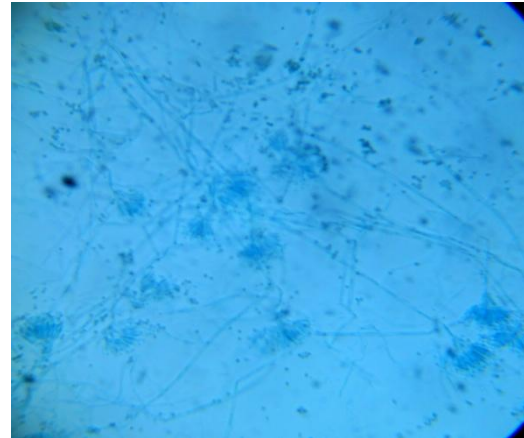
*Curvularia lunata* (Wakker) Boedijin



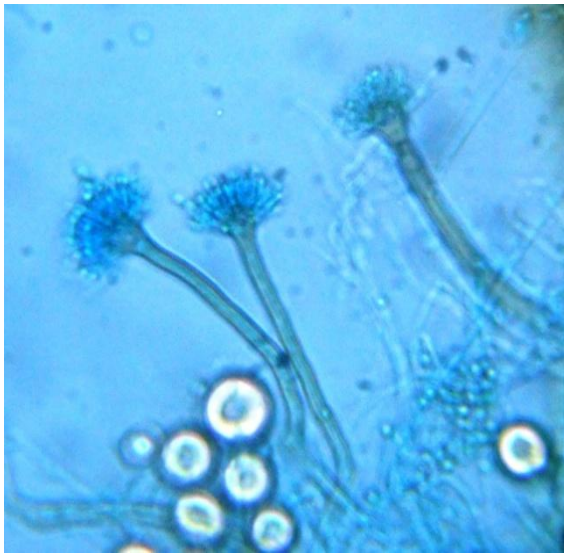
*Fusarium moniliforme* Sheld.



*Fusarium oxysporum* Schlecht.



*Penicillium frequentans* Westing



*Penicillium chrysogenum* Thom



*Rhizopus nigricans* Ehrens

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