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HYPHOMYCETES IN JALNA DISTRICT OF MAHARASHTRA

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Abstract: Some species of hyphomycetes collected from Jalna district soils are reported for the first time. viz *Tritirachium roseum*. Van Beyma. *Antionie van Leeuwenhocke*, *Alternaria dauci* (Kiihn) Groves and Skolko, *Beltrania mangiferae* Munjal and Kapoor *Cladosporium macrocarpum* preuss, *Curvularia fallax* Boedijn, *Corynespora longispora* Saikia and Sarbhoy, *Cylindromyces striatus* Manoharachary.

Keywords: Soil Hyphomycetes, Forest soil, Agricultural Soil

Introduction: The amount and activity of the soil microflora, which contribute to the biological characteristics of the soil, have a significant influence on the soil system. The growth and activity of the soil microflora are influenced by physical and chemical parameters such as pH, temperature, the amount of accessible moisture, and nutrients. Hyphomycetes are a significant component of soil microflora. They are found worldwide in diversified habitats viz, soil, water, litter, herbivores dung, plant-animal parts. Several hyphomycetes from forest and grassland soils, agriculture soils, and various soils have been studied. About 6000 species of hyphomycetes have been reported in India.

Materials and Methods: The soil samples up to 15 cm deep were collected in sterile plastic bags and brought to laboratory. The soil samples were inoculated on Potato Dextrose Agar (PDA), Czapek's Dox Agar (CDA), Potato Sucrose Agar (PSA) culture medium by serial dilution technique (Warcup,1960) and incubated for the growth of fungi. After seven days, colony was mounted in lactophenol to study the microscopic characters. Species were identified with help of manuals.

Result and Discussion:

1. *Tritirachium roseum*.Van Beyma(1942). Antionie van Leeuwenhocke.**8**:119.
   Colonies rosy colored, mycelium septate, branched 1.8-2.7 um wide. Conidiophores long, erect, branched, septate, 450-1100 um long, verticillately branched, branchlets sympodulae.19-69×1.6-3.4 um. Swollen at the base, tapering to rachis zigzag-like conidia bearing portion, conidia apical or lateral, hyaline to dilute rose colored produced in acropetal succession, globose to ovate 1.4 to 1.5 um.
   Matrix: Agriculture soil. Loc: Bori village. Date: 15 June 2022.
   This species is generally found in soils and was first reported by Mehrotra and Basu (1967). Manoharachary and Ramrao (1974) isolated it from the soils of Hyderabad. The characteristics of the specimen collected are similar to that of the original description except for slightly larger Conidiophores and conidia.
2. *Alternaria dauci* (Kiihn) Groves and Skolko. Can. J.Res .Sect. C.**22**: 222 (1994).
   Conidiophores arising singly or in groups, straight or flexuous, sometimes geniculate pale or mid pale brown, up to 86 um long, 7.4-10 um thick conidia usually solitary or in chains, straight or curved rostrate with beak up to 3 times the length of the spore, brown, smooth overall 150-550 long um 15-23 um thick in the broadest part with 8-12 transverse and 1to several longitudinal or oblique septa 407-6.5 um thick the base tapering to 1.5-2.7um
   Matrix: Agriculture soil. Loc: Bori village. Date: 15 June 2022.

Mohanty (1961) recorded this species as a pathogen on Carrots (Dacus carrot, L.).Roy (1969) Studied its pathogenesis on Carrot leaves. The present specimen is collected from a soil sample. These species occur in the study area.

3. *Beltrania Mangiferae* Munjal and Kappoor *Indian phytopath* .**16**.87 (1963)
   Colonies effuse, dark brown or blackish brown, velvety, setae pointed at apex, simple two kinds both arise from the same radially lobed basal cell, a single central straight, dark brown, smooth, thick-walled seta up to 270 um long and 4-6.9 um thick surrounded by 3-5 flexuous pale brown narrower and longer seta these are verrucose above the middle conidiophores up to 160 um long and about 2.9 um thick at base, 4-4.8um near the apex. Conidia bicinic, hyaline, or brown, with transverse band 21-29 um ×8.5-12.8um, appendage 2.5-5um long.
   Matrix: soil sample. Loc: forest area of Ambad. Date: 20 July 2022.
   Munjal and Kappoor collected it on mango leaves in the Himalayas and described it as a new species.Patil (1964) reported this species for the first time in Maharashtra.
   Pirozynski and Patil (1970) reported this species on leaf litter for the first time in South India. This species is commonly found in the study area.
4. *Cladosporium macrocarpum* Preuss, 1848, *In Sturm's Deut. Fl*., **3:** 27-28 Colonies effuse, olive green, velvety. Stroma is sometimes well-developed. Conidiophores are mostly macronematous, straight or flexuous, often geniculate and nodose, pale to mid brown or olivaceous brown, smooth or in part verruculose, up to 350µ long, 5-9 u thick, terminal and intercalary swellings when present 10-11.5 diam. Conidia usually in relatively short chains, oblong, rounded at the ends or ellipsoidal, 0-4-septate, pale to mid brown or olivaceous brown, thick-walled, densely verrucose, 10-29 x 6-14 (mostly 15-25 x 7-10). A common cosmopolitan species, especially abundant in temperate regions on dead herbaceous and woody plants, allied to C. herbarum but distinguished by its broader, frequently 2- and 3-septate conidia.
   Matrix: soil sample. Loc: forest area Ambad. Date: 20 July 2022.
   Sing et al. (1951) found this species as a pathogen on *spinacea oleracea* and reported it for the first time in India. This species is rare in the study area.
5. *Corynespora longispora* Saikia and Sarbhoy *Ind.Phytopatho*.**33**:466-470(1980a). Colonies effuse blackish, brown, to dark brown, velvety, mycelium immersed, pale brown, and hyphae septate. Conidiophores arise singly or in the group of 2.7 from the cells of stromata or terminally or laterally on the hyphae, erect, straight or flexuous, pale to mid-brown 9-10 septate. 370-960µm length, 5.8-8.5µm thick at the base, and 3.5-4.7 at the apex. Conidia cylindrical or subcylindrical, very rarely obclavate cylindrical, straight or curved, sub hyaline, to pale brown, smooth, 8.5-22.5 septate, 4.6-6.5 µm long and 3.5-5.4 µm thick, wide at the truncate base.
   Matrix: Agriculture soil sample. Loc: Zirpi Tanda. Date: 10 Sep 2022.
   Saikia and Sarbhoy (1980a) collected this species on a decaying stem from northeast India and described it as new. The present collection shows similar characters to the original description and is being reported first from the Jalna district.
6. *Curvularia fallax Boedijn*. (1993) *Bull.Jrd.bot.Buitenz, III*, (1) :120-134
   Conidiophores brown, thread-like, unbranched, conidia acrogenous verticillate or spirally arranged 24-35× 10-13 µm. The characters of the present genus are similar to the original description, except that conidia are smaller.
   Matrix: Agriculture soil sample. Loc: Chinchkhed area Ambad. Date: 13 Oct 2022.
   Borborua (1985) reported this species as a pathogen causing leaf disease of *Cocos nucifera*, L. seedlings. The species is collected as soil and is being reported for the first time from the study area.
7. *Cylindromyces straitus* Manoharachary *Indian Phytopath*.**57** (2):161-163(2004). Colonies effuse brown blackish or snuff colored hairy, mycelium immersed, loosely branched, pale brown, smooth. Conidiophores micronematous or semimacronematous, arising terminally from the immersed mycelium, smooth, straight or flexuous,o-septate, pale brown 3-3.8 long and 3.6-4.5 µm wide. Conidiogenous cell monotretic, integrated terminals, pale brown and cylindrical. Conidia solitary,

dry acrogenous, straight, long, slightly curved, gradually tapering to the base and rounded at the apex. Pleuroseptate up to 26 or more euseptate, septa equally placed. Cells with well-marked characteristic striations appear longitudinally and diagonally. 150 - wide at the base. 150 um long, 6.8-9.6 µm wide at the base's broadest 2.7 - 3.8 µm wide.

Matrix: Agriculture soil. Loc: Lalwadi area Ambad.Date: 12 Jan 2023.

The present species is rare in occurrence. The characters of this specimen are similar to the original description.

Photograph

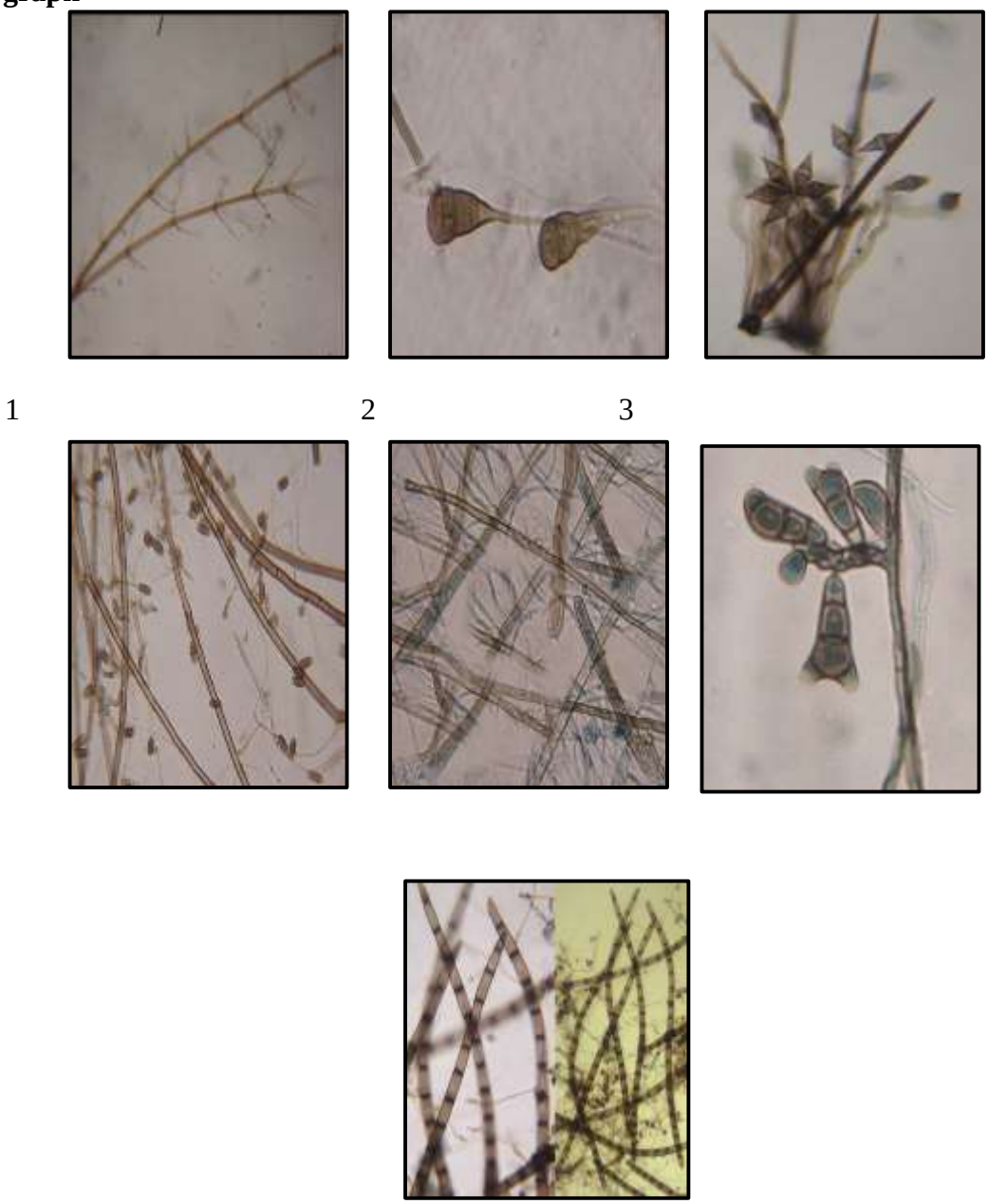

Fig: 1. *Tritirachium roseum* J.F.H. Beym 2. *Alternaria dauci* Groves and Skolko, 3.*Beltrania mangiferae* Munjal and Kapoor, 4. *Cladosporium macrocarpum Preuss*, 5. *Corynespora longispora (*Berk & Curt. Ellis) 6. *Curvularia fallax* Boedijin 7. *Cylandromyces striatus* Manoharachary, Agrawal and Rao.

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