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A NEW SPECIES OF BASIDIOMYCETE, PARASITIC ON LEAVES OF *DELONIX ELATA* (L) GAMBLE

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ABSTRACT : *Microstroma satyae* Smita Dubey, a new species of folicolous parasite of *Delonix elata* (L) Gamble has been described, camera lucida drawings of basidiocarp, basidia, cystidia and basidiospores are given.

Key words : *Microstroma satyae new species described.*

INTRODUCTION

Microstroma Niessl, has been a most controversial fungus taxonomically. Seven species has been recorded from India (Bilgrami *et al.*,1991). *Microstroma satyae* is the 8th species record of the fungus from India.

MATERIAL AND METHODS

The fungus was collected on living leaves of *Delonix elata* (L) Gamble from village Chhirvel, near Khandwa, M.P. on 21st September,1975. Infected leaves with fungus were pressed and dried. The basidiospores showed yeast like budding on ZDA culture medium. Camera lucida drawings and measurements of various structures were taken in water mounts. Thin hand sections of infected leaves were taken and stained by 1% cotton blue in lactophenol.

RESULTS AND DISCUSSION

Description : C.No. B1 : The fungus belongs to the genus *Microstroma* of Exobasidiales. It differs from all other described species so, it is described here as a new species,

Microstroma satyae Smita Dubey Sp. nov.

Etymology : Satyae after Dr. H. N. Satya, Mycologist who collected the fungus.

Description of the fungus : Infected leaflets exhibit neither spots nor hypertrophy, diffused light chlorosis usually visible. The fungus is present mostly on adaxial side of leaflets. Mycelium septate, branched, hyaline, dikaryotic, intercellular, with knob like haustoria, 0.5-1.5 µm wide. Basidiocarps minute, irregular, white powdery amphigenous colonies on leaflets. Basidiocarp consists of two parts, a basal substomatal stroma and an emergent fascicle of basidia. Stroma substomatal, globose, hyaline mass of parallel hyphae, which converge at orifice of stoma, stroma 27-35-40 µm in diam.; basidial fascicles arising from stroma and emergent through stomata, white pulvinate 30-35-45 µm in diam.; cystidia usually present in the basidial fascicle, vary in shape from fusoid-ventricose to clavate-mucronate, clavate-capitate or subulate, hyaline, thick walled, surface rough or smooth, 22-30 µm long, 2-4.5 µm wide; basidia holobasidiate, phialide like, hyaline 16-18-21 µm long, 2.5-3.5-5 µm wide at broadest part. Probasidia persistent, clavate, thick walled, 8-13-16 µm long and 3.5-5 µm wide with thin walled epibasidia, arising apically; epibasidia cylindrical, 3-8-10 µm long and 2-3.5 µm wide, 2-6 sterigmate, with short sterigmata, basidiospores thin walled, smooth, hyaline, inamyloid, 0-septate, oval to elliptical, 4-6.5-8 µm long and 1.5-3-4 µm wide, non-repetitive, germinate by yeast like budding.

Latin : *Microstroma satyae* Smita Dubey sp. nov.

Foliola infecta nec maculas nec hypertrophiam sed tantum chlorosem in luce diffusa visibilem exhibent. Basidiocarpia minuta (*Oculo nudo* vix visibili), colonias concentricas vel irregulares, albas pulvereas, amphigenas in foliolis formantia. Basidiocarpium e partibus duabus constans : stroma basale substomatale et fasciculus emergens basidiorum.

Stroma substomatale, globosum, e massa hyalina hypharum aggregatarum constans, 27-35-40 µm diam.; fasciculi basidiales e stromate exorientes et per stomata emergentes,albi, pulvinati, 30-32-45 µm in diam.; cystidia plerumque in fasciculo basidiali praesentia, in forma variantia ab fusoidali-ventricosa usque ad clavata, clavato-mucronata, clavato-capitata vel subulata, hyalina, parientibus crassis, pagina aspera, vel laevi, 22-30 µm longa, 2-4.5 µm lata; basidia holobasidiata phialidaceae, hyalinae,16-18-21 µm longae et 2.5-3.5-5 µm latae in parte latissima. Probasidia persistentia, clavata, parietibus crassis, 8-13-16 µm longa et 3.5-5 µm lata, metabasidiis parietibus teneris praeditis, apicaliter exorientibus; metabasidia cylindrica, 3-8-10 µm longa et 2-3.5 µm lata, 2-6 sterigmatalia, sterigmatibus brevibus praedita; basidiosporae parietibus teneris, laeves, hyalinae, inamyloideae, non septatae, ovales usque ad ellipticae, 4-6.5-8 µm longae and 1.5-3-4 µm latae, non repetitivae, productione conidiorum ab germmatione fermentacea in cultura germinantes.

The type specimen has been deposited at Common wealth Mycological Institute, Kew, England, as IMI No. 200978.

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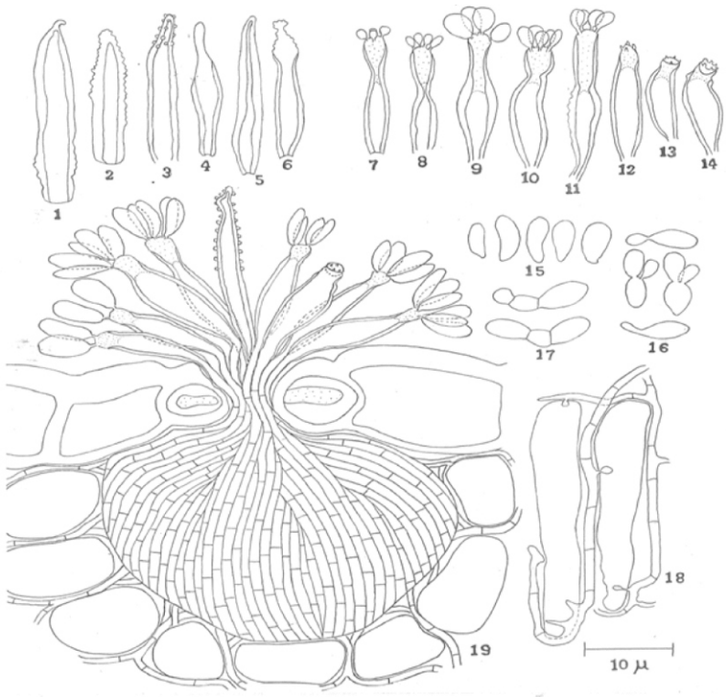

Plate 1. C.No.B1 : *Microstroma satyae* Smita Dubey from host, *Delonix elata* (L) Gamble. Figs.1-6 . Types of Cystidia. Figs. 7-11. Probasidia with epibasidia; epibasidia with basidiospores on sterigmata. Fig. 12. Basidium with sterigmata. Figs. 13-14. Metabasidium collapsed and probasidium persistant. Fig. 15. Basidiospores. Figs. 16-17. Yeast like budding basidiospores. Fig. 18. Intercellular mycelium with haustoria in palisade cells. Fig. 19. Section through the leaflet showing basidiocarp of the fungus. Basidial fascicles and cystidia emerging through stomata.

The systematic position of *Microstroma* has been a matter of controversy for many years. It was classified under Hyphomycetes by many authors, others classified it under Exobasidiales, Basidiomycetes (Pires,1928). Now the molecular mapping of *Microstroma juglandis* (Bereng.) Sacc. has finally solved the controversy and placed it in Exobasidiales, Basidiomycetes (Gottschalk and Blanz,1984). They concluded that in *Microstroma juglandis*, 5s rRNA sequence differs from all other basidiomycete 5s rRNA sequences published so far in respect to its secondary structure which shows an atypical 'CCA' loop in halix D, but it reveals typical basidiomycet signature nucleotides. Therefore *Microstroma juglandis* represents a cluster of its own within the Basidiomycetes.

The fungus was observed by Dr. James Ginns, Director Research Branch, Biosystematics Research Institute, Ottawa, Canada. He confirmed that the fungus is a species of *Microstroma*. It was compared with *M.albiziae* Syd., *M.cadabae* Thirum & Naras and *M.pithecolobii* Lamkey. It is distinct from them. The fungus may be a new species.

The present fungus *Microstroma satyae* is a new species because it differs from all other known species in having pro-basidia and epibasidia, cystidia and the host plant *Delonix elata* (L.) Gamble It is therefore described here as a new species

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