Research Article

New *Sarcinella* Black Mildew Fungal Species from Jangalapally Forest, Pakhal Wild Life Sanctuary, Warangal District, Telangana State, India.

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ABSTRACT

This paper gives an account of one new black mildew fungal species of the genus *Sarcinella* namely *Sarcinella indigoferae.* During the survey and documentation of foliicolous fungi from Jangalapally forest, Pakhal wild life sanctuary, Kothaguda forest range in Warangal district, Eastern Ghats region of Telangana state, India. Authors have made several collections of Black mildew fungal species. Of these *Indigofera cassioides* Rottl.ex DC. (*Indigofera pulchella* Roxb.) (Fabaceae) was found infested with black colonies on the upper surface of the Leaves. Critical microscopic examination of the black colonies revealed that it is undescribed species of the genus *Sarcinella.* Hence it is described as new species.

Keywords: Black mildew, *Sarcinella*, new species, Pakhal wild life sanctuary.

INTRODUCTION

Black Mildews are the group of black colony forming parasitic fungi. They are commonly found as superficial parasites on the surfaces of leaves. Among the Black mildew fungi there are several group of fungi are present viz,. *Asterinaciuos*, *Schiffnerula*, *Sarcinella*. The schiffnerulaceous fungi are known for their synanamorphs, i.e. they produce more than one anamorph, namely, *Sarcinella*, *Questieriella*, *Digitosarcinella* and *Mitteriella* states (Hughes 1983, 1984, 1987). Majority of the black mildews are obligate biotrophs and are specific to a particular host plant (usually to the genus but often to the species). Presently a black mildew fungal infected leaves were found on *Indigofera cassioides* Rottl.ex DC. (***Indigofera pulchella*** Roxb.) (Fabaceae) no black mildews have been previously recorded on this host, and hence, it has accommodated as new species.

MATERIALS AND METHODS

Infected plant parts were collected and observed carefully in the field, field notes were made regarding their pathogenicity, nature of colonies, nature of infection, locality altitude, etc. for each collection. Infected plant parts were collected separately in polythene bags along with a host twig (preferably with the reproductive parts) to facilitate the identity of the corresponding host. These infected plant parts were pressed neatly and dried in-between blotting papers. After ensuring their dryness, they were kept in the manifold or butter paper folders. For microscopic study, scrapes were taken directly from the infected host and mounted in 10% KOH solution. After 30 minutes, KOH was replaced by Lacto phenol (Rangaswamy, 1975). Nail polish technique (Hosagoudar and Kapoor, 1984) was used to study the entire colony in its natural condition. A drop of well transparent nail polish were applied to the selected colonies and carefully thinned with the help of a fine brush without disturbing the colonies. Colonies with hyperparasites show wooly nature and were avoided.

When the nail polish on the colonies dried fully, a thin, colourless film or flip formed with the colonies firmly embedded in it. A drop of DPX will be spread on a clear slide flip and a clean cover glass were placed over it and a gentle pressure on the cover glass to avoid the air bobbles and brings out the excess DPX and it will be removed after drying.

These slides were labeled and placed in a dust free chamber for 1-2 days for drying. These permanent slides were then used for further studies.

Microscopic studies were carried with the help of compound microscope and microphotographs were taken by inbuilt CMOS camera of 1.3 megapixels. After the study of each collection, the materials (Holotype) were deposited in the (TBGT), Thiruvananthapuram, Kerala.

RESULTS

***Sarcinella indigoferae* sp. nov. Mohd Khaja Moinudddin, G. Bagyanarayana. (Figs.1-8).**

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter spreading on the dorsal surface of leaf. Mycelium flexuous to croocked, brown, branches alternate to irregular, closely to loosely reticulate, mycelium cell 10 - 17 × 2 – 5µm. Appressoria unicellular globose, entire, alternate to unilateral, brown 5 – 7 × 3 - 6 µm. Sarcinella conidiophore straight to curved mononematous unbranched 5 - 10 × 2 - 5 µm. Sarciniform conidia are smooth walled, terminal, solitary, sarciniform 4-9 celled, cells constricted at the septa, brown to black coloured 5 - 22 × 7 - 25 µm. Questieriella conidia scattered in the mycelium, 3 septate 4 celled constricted at the septa both towards tapering ends 7-17 × 2-7µm.

Material Examined

On living leaves of ***Indigofera cassioides*** Rottl.ex DC. (*Indigofera pulchella* Roxb.) (Fabaceae). Jangalapally forest. Kothaguda mandal, Pakhal wild life sanctuary. Warangal district, Telangana state, India. Coll. By Mohammad Khaja Moinuddin, Dt. 26-01-2014. TBGT No-6873.

DISCUSSION

The genus ***Sarcinella*** is the synanamorph of the genus ***Schiffnerula***.

This genus and its other anamorphs were studied by Hansford (1946), Hughes (1983, 1984, 1990); ***Sarcinella dalbergiae*** Hosag. & Agarwal, ***Questieriella tephrosiae*** Hosag. & Agarwal, were reported on the members of Fabaceae but the present collection differs from them possessing both *Questieriella* and *Sarcinella* states.

Hence, this is the first report of a Schiffnerulaceous fungus on the members of the family Fabaceae.

Figure 1

Figure 2

Figure 3

Figure 4

Figure-1, 2, 3, 4: *Sarcinella indigofera* sp. nov. Symptoms produced on leaves of ***Indigofera cassioides.***

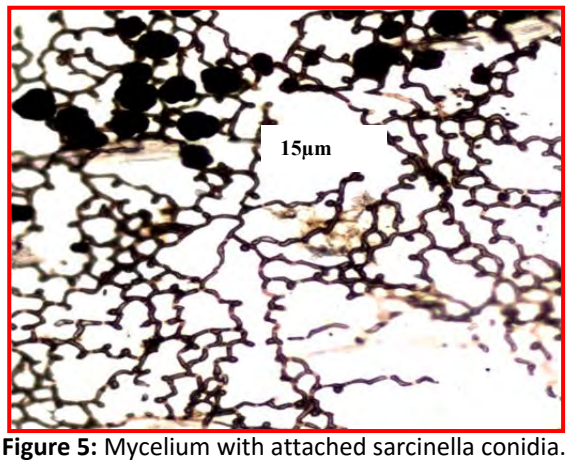

Figure 5: Mycelium with attached sarcinella conidia.

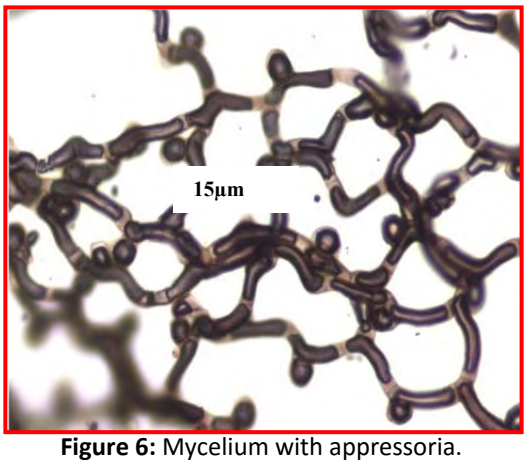

Figure 6: Mycelium with appressoria.

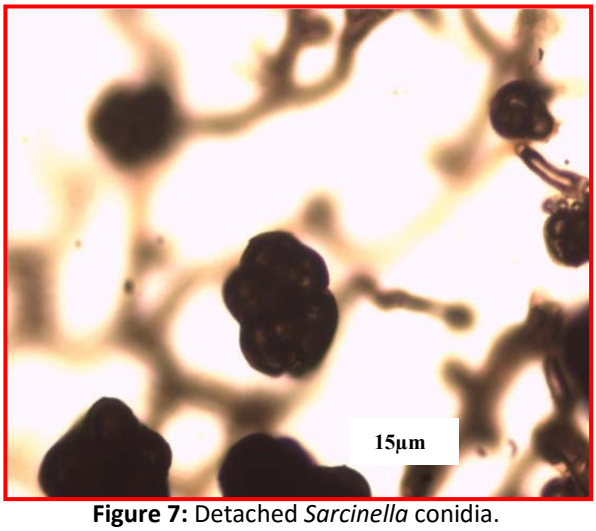

Figure 7: Detached *Sarcinella* conidia.

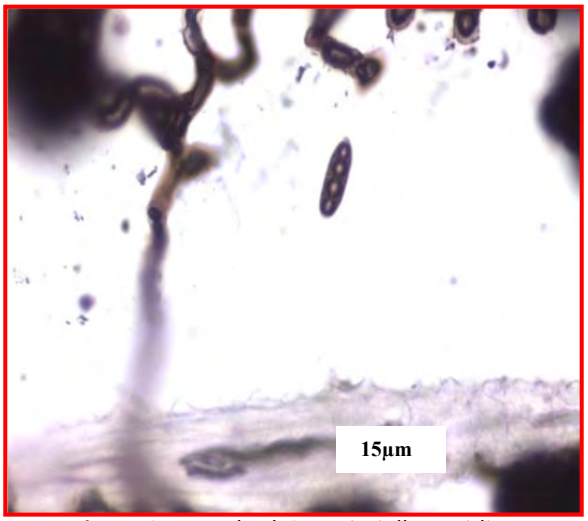

Figure 8: Detached *Questieriella* conidia.

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