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Short Communication

Two new schifffnerulaceous fungi from Kerala, India

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Two new species namely, *SARCINELLA LORANTHACEARUM* and *SCHIFFNERULA MELIOSMATIS* were collected from Peppara and Neyyar Wildlife sanctuaries and Silent Valley National park are described and illustrated in detail.

Key words: Black mildews, new species, Kerala, India.

INTRODUCTION

Black mildews are the group of fungi belonging to several orders of the fungi. Of these, the present work gives an account of two new species of the genus *Schiffnerula*, and of which one is with teleomorph on the member of Sabiaceae and the other with anamorph on Loranthaceae. These are the obligate biotrophs having high degree of host specificity.

METHODOLOGY

Infected plant parts were selected in the field, field notes were made regarding their pathogenicity, nature of colonies, nature of infection and the collection locality. For each collection, a separate field number was given. In the field, each infected plant was collected separately in polythene bags along with the 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 used for microscopic study. Scrapes were taken directly from the infected host and mounted in 10% KOH solution. After 30 min, KOH was replaced by Lactophenol. Both the mountants work well as clearing agents and made the septa visible for taking measurements.

To study the entire colony in its natural condition, a drop of high quality natural colored or well transparent nail polish was applied to the selected colonies and carefully thinned with the help of a fine brush without disturbing the colonies. Colonies with hyper parasites showing a woolly nature were avoided. The treated colonies along with their host plants were kept in dust free chamber for half an hour. When the nail polish on the colonies dried fully, a thin, colorless or slightly apple rose colored (depending upon the colour tint in the nail polish) film or flip was formed with the colonies firmly embedded in it. In case of soft host parts, the flip was lifted off with a slight pressure on the opposite side of the leaves and just below the colonies. In case of hard host parts, the flip was eased off with the help of a razor or scalpel. A drop of DPX was spread on a clean slide and the flip was spread properly on it. One or two more drops of DPX were added additionally on the flip and a clean cover glass was placed over it. By gently pressuring on the cover glass, excessive amount of DPX was removed after drying. Care was taken to avoid air bubbles. These slides were labeled and placed in a dust free chamber for one to two days for drying. These permanent slides were then used for further studies. For innate fungi, sections were made and stained in cotton blue. After the study of each collection, part of the material was retained in the regional herbarium, Tropical Botanic Garden, Thiruvananthapuram (TBGT) and part of it was deposited in the Herbarium Cryptogamae Indiae Orientalis (HCIO), IARI, and New Delhi.

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TAXONOMY

SARCINELLA LORANTHACEARUM sp. nov. (Figure 1)

Coloniae epiphyllae, densae, ad 2 mm diameter, confluentes. Hyphae brunnneae, rectae vel subrectae, alternate vel opposite acuteque vel laxe ramosae, arte reticulatae, cellulae 16-29 × 4-7 µm. Appressoria alternata, unicellularis, ovata vel globosa, integra, 9-12 × 7-10 µm. Conidiophorae micronemataw, mononematae, simplices, rectae, leniter brunnneae, exoriens hyphis lateralis, glabra, 9-15 × 7-10 µm;
cellulae conidiogenae integratae, plerumque terminalis, monoblasticae, determinatae, cylindraceae; conidia simplices, solitaria, sicca, acrogena, globosa, glabra, brunnnea vel nigra, constrictus ad septatus, celluae 5-8, sarciniformes, 24-29 µm diam.Conidia *Questieriella* visa, recta vel

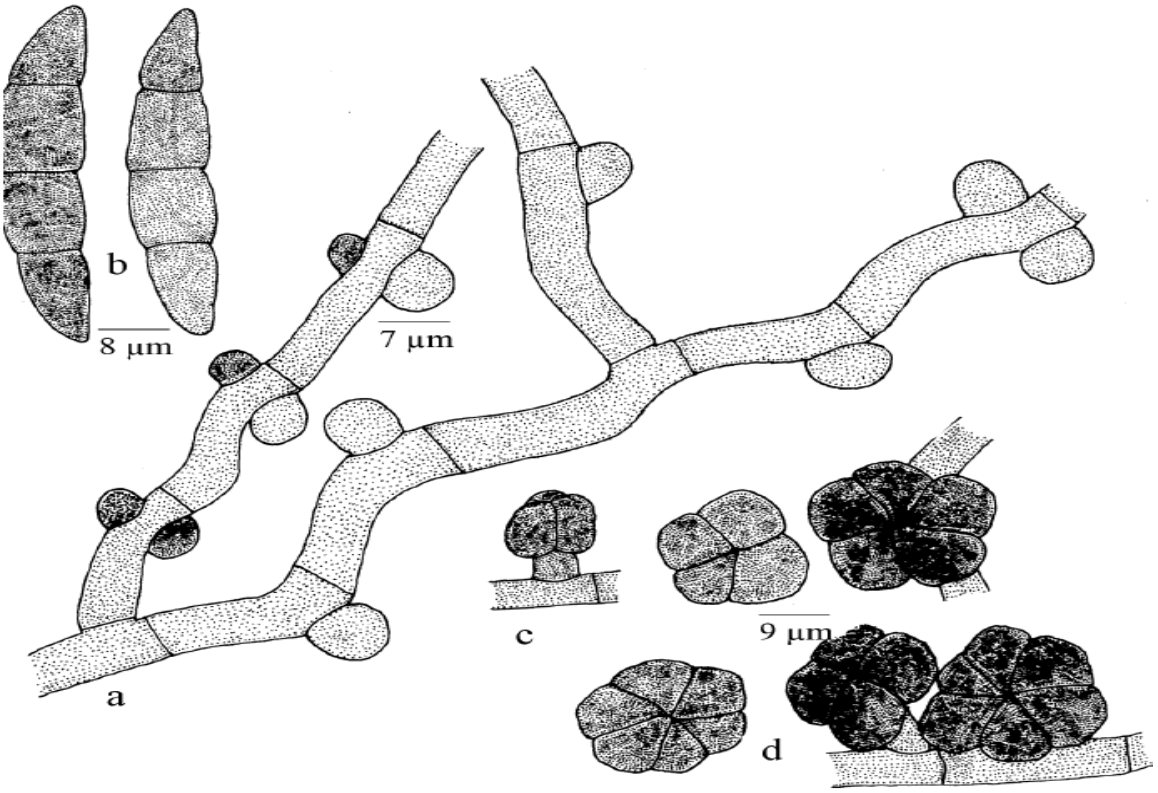

Figure 1. *Sarcinella loranthacearum* sp. nov. (a) Appressoriate mycelium, (b) Conidia of *Questieriella*, (c) *Sarcinella* conidium on conidiophore, (d) Conidia of *Sarcinella*.

leniter falcata, 3-septata, brunnea, 26-36 x 7-10 µm, parietus glabrus.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae brown, straight to sub-straight, branching alternate to opposite at acute to wide angles, closely reticulate, cells 16-29 × 4-7 µm. Appressoria alternate, unicellular, ovate to globose, entire, 9-12×7-10 µm. Conidiophores micronematous, mononematous, simple, straight, light brown, arise laterally from the hyphae, smooth, 9-15 × 7-10 µm; conidiogenous cells integrated, mostly terminal, monoblastic, determinate, cylindrical; conidia simple, solitary, dry,

acrogenous, globose, smooth, brown to carbonaceous black, constricted at the septa, 5-8 celled, sarciniform, 24-29 µm in diameter. Conidia of *Questieriella* were present, straight to slightly falcate, 3-septate, pale brown, 26-36 × 7-10 µm, wall smooth.

Materials examined: On leaves of *Loranthus* sp. (Loranthaceae), Silent Valley National Park, Palakkad, July 12, 2008, HCIO 49041 (holotype), TBGT 3296 (isotype). The genus *Sarcinella* is reported here for the first time on the members of the family Loranthaceae (Hosagoudar, 2003; Hughes, 1987). Hence, it is accommodated in a new species.

SCHIFFNERULA MELIOSMATIS **sp. nov. (Figure 2)**

Coloniae epiphyllae, tenues, ad 2 mm diameter, confluentes. Hyphae brunneae, subrectae vel flexuosae, alternate vel irregulariter acuteque vel laxe ramosae, laxe vel arte reticulatae, cellulae 16-26 × 4-6 µm. Appressoria alternata vel unilateralis, unicellularis, globosae, ovatae, integrae, 7-10 × 7-10 µm.

Conidiophorae macronematae, mononematae, simplices, rectae, leniter brunneae, glabrae, 7-10 × 6-8 µm; cellulae conidiogenae integratae, plerumque terminalis, monoblasticae, determinatae, cylindraceae; conidia simplices, solitarius, sicca, acrogena, globosa vel subglobosa, glabra, nigra, constrictus ad septatae, 5-8 cellulae, sarciniformes, 24-34 × 21-29 µm. Conidia Quesiteriella dispersa, raro hyphis affixus, leniter curvulae, 3-septata, leniter constrictus ad septata, germinans, leniter brunnea, 36-41 × 7-12 µm, parietus glabrus. Thyriothecia dispersa, orbicularis, radiatus initio, portionio ad centralis disintegratus ad maturitatae, ad 62 µm diam., cellulae marginalis radiatae; asci 1-4 per thyriotheciis, ovati vel subglobosi, octospori, 30-40 µm diam.; ascosporae oblongae, conglobatae, uniseptatae, fortiter constrictus ad septatae, brunneae, 15-25 × 7-12 µm.

Colonies epiphyllous, thin, up to 2 mm in diameter,

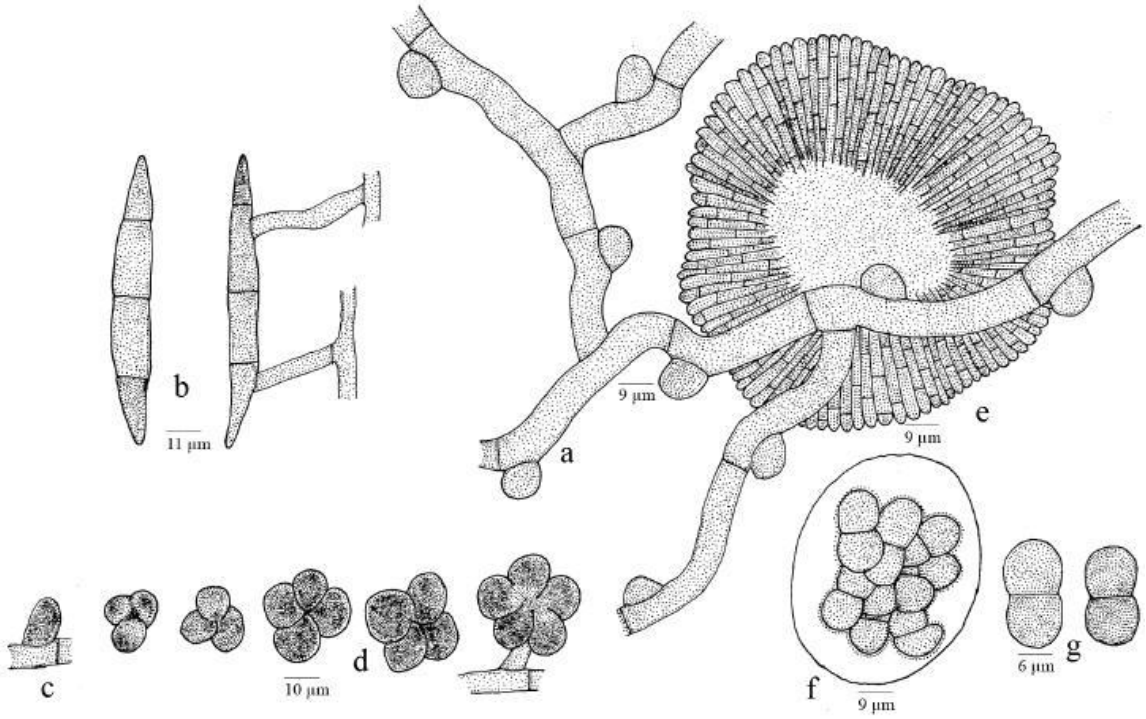

Figure 2. *Schiffnerula meliosmatis* sp. nov. (a) Appressoriate mycelium, (b) Conidia of *Questieriella*, c. *Sarcinella* conidium on conidiophore, d. Conidia of *Sarcinella*, e. Thyriothecium, f. Ascus, g.

confluent. Hyphae brown, substraight to flexuous, branching alternate to irregular at acute to wide angles, loosely to closely reticulate, cells 16-26 × 4-6 µm. Appressoria alternate to unilateral, unicellular, globose, ovate, entire, 7-10 × 7-10 µm. Conidiophores macronematous, mononematous, simple, straight, light brown, smooth, 7-10 x 6-8 µm; conidiogenous cells integrated, mostly terminal, monoblastic, determinate, cylindrical; conidia simple, solitary, dry, acrogenous, globose to subglobose, smooth, carbonaceous black, constricted at the septa, 5-8 celled, sarciniform, 24-34 × 21-29 µm. Conidia of Questieriella were scattered or attached to hyphae, slightly curved, 3-septate, slightly constricted at the septa, germinating, light brown, 36-41 × 7-12 µm, wall smooth. Thyriothecia scattered, orbicular, initially radiating, dehiscing by disintegrating the cells at the centre forming a wide opening and exposing the asci, up to 62 µm in diameter, marginal cells radiating; asci 1-4 per thyriothecia, ovate to subglobose, octosporous, 30-40 µm in diameter; ascospores oblong, conglobate, uniseptate, strongly constricted at the septum, brown, 15-25 × 7-12 µm.Material examined: On leaves of *Meliosma simplicifolia* (Roxb.) Walp. ssp. *pungens* (Wallich ex Wight and Arn.) Beus. (Sabiaceae), Near Peppara Dam, Peppara Wild life Sanctuary, Thiruvananthapuram, March 1, 2008, Jacob HCIO 48418 (holotype), TBGT 3139 (isotype). This is the first species of the genus *Schiffnerula* on the members of the family Sabiaceae (Hosagoudar, 2003; Hughes, 1987).

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