Sarcinella tamarindi sp. nov. from Kerala, India

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A new species of *Sarcinella* and its *Questieriella* synanamorph collected on leaves of *Tamarindus indica* from Kerala State, India is described and illustrated as new species.

Key words – India – Kerala – black mildew – *Sarcinella* – new species – *Questieriella*

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Introduction

Black mildew is a common name applied to various groups of organisms comprising meliolaceous fungi, asterinaceous fungi, schiffnerulaceous fungi, etc. They are commonly found as superficial parasites on the surfaces of leaves. 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). These are obligate biotrophs and are specific to a particular host plant (usually to the genus but often to the species). Recently, a black mildew was found on *Tamarindus indica* (tamarind), an economically important fruit-yielding plant (Hughes 1987, Hosagoudar 2003). No black mildews have been previously recorded on this plant, and hence, it is accommodated as a new species.

Methodology

Infected plant parts were noticed in the field. These infected plant parts were pressed neatly and dried between sheets of blotting paper. 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 minutes, KOH was replaced by lactophenol. Both mountants worked 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 coloured or 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 hyperparasites, which showed a woolly nature, were avoided. The treated colonies along with their host plants were kept in dust free chamber for 30 minutes. When the nail polish was dry, a thin, colorless or slightly apple rose coloured (depending upon the colour tint of 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 the case of hard host parts, the flip was eased off with the help of a razor or scalpel. A drop of DPX (A mixture of Distyrene, a plasticizer and xylene) was spread on a clean slide and the flip was placed on it. One or two more drops of DPX were added to the top of the flip and a clean cover glass was placed over it. Gentle pressure applied to the cover glass forced out any excess DPX. Care was taken to avoid air bubbles. The slides were

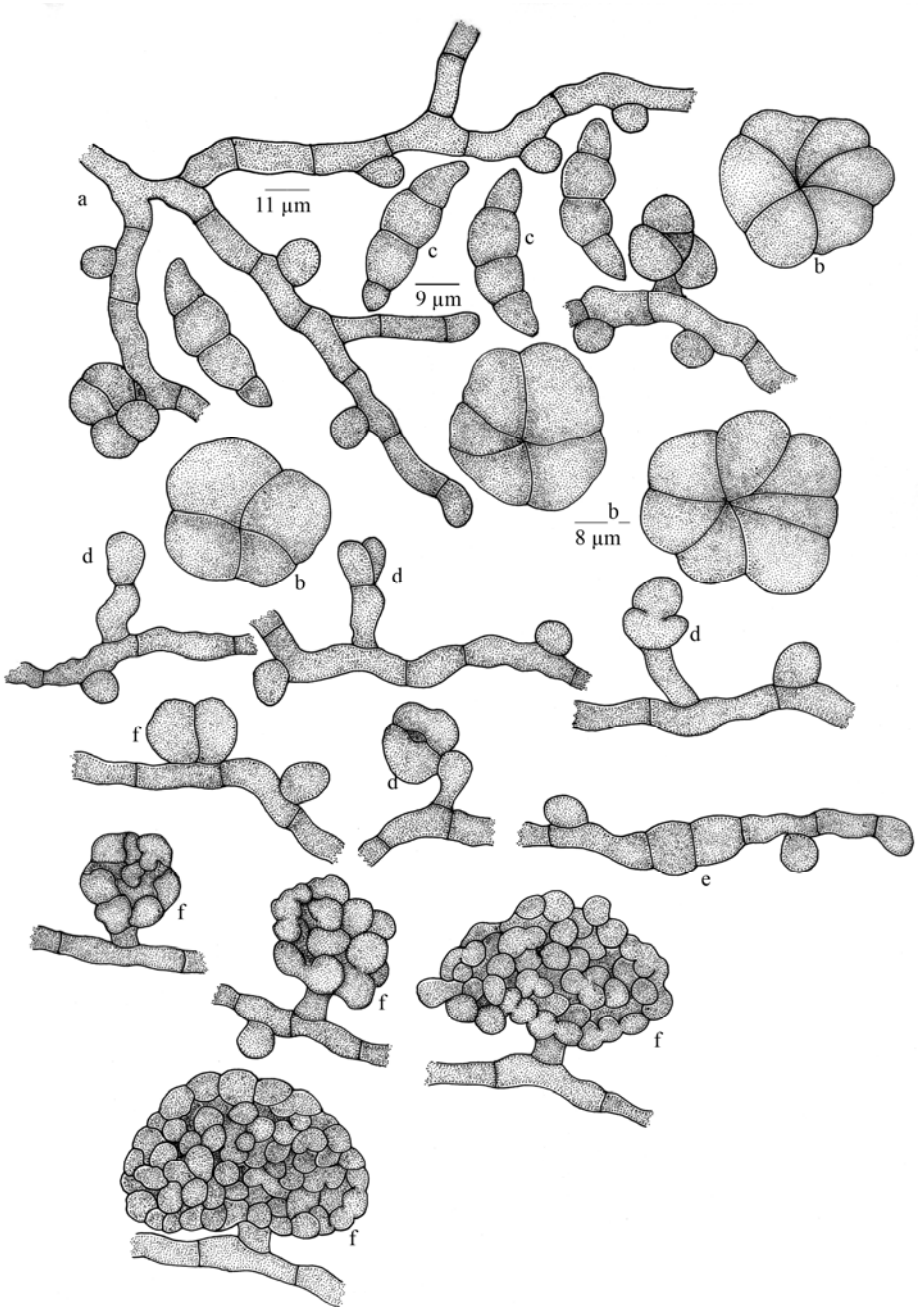

Fig. 1 – *Sarcinella tamarindi* sp. nov. **a.** Appressoriate mycelium. **b.** *Sarcinella* conidia. **c.** *Questieriella* conidia. **d.** Development of *Sarcinella* conidia. **e.** Germinating *Questieriella* conidia. **f.** Developing thyriothecium.

labeled and placed in a dust free chamber for one to two days for drying. These permanent slides were then used for observation and retained.

Taxonomy

***Sarcinella tamarindi* sp. nov.** (Fig. 1, Plate-1) MycoBank 519463

Coloniae amphigenae, tenues, despersae, ad 3mm diam. Hyphae subrectae, plerumque opposite ramosae, alternate vel irregulariter acuteque vel laxe ramosae, laxe reticulatae, cellulae 15–28 × 2–5 µm. Appressoria alternata vel unilateralis, unicellularis, globosa, crassa posita, integra, 7–8 × 5–8 µm. Conidia *Questieriella* pauca, dispersa in coloniis, 33–38 × 7–10 µm, 3-septata, contrictus ad septatus, parietus glabrus. Conidiophora *Sarcinellae* simplices, micronemata, mononemata, unicellularis vel septatis, 5–20 × 2–5 µm; cellulae conidiogenae integratae, monoblasticae, terminalis,

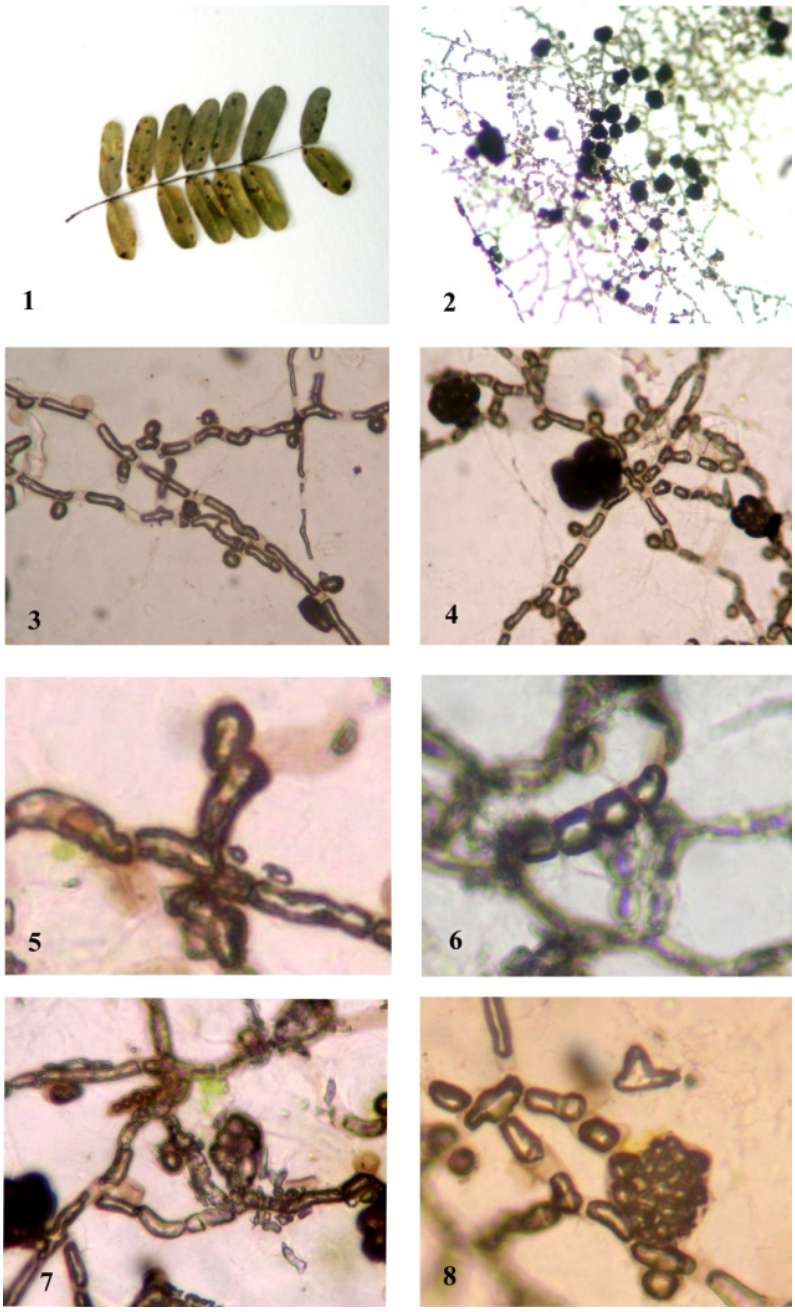

Plate-1 – *Sarcinella tamarindi* **sp. nov. 1** Infected leaves. **2** Fungal colony. **3** Appresoriate hyphae. **4.** Hyphae with sarciniform conidia. **5.** Conidiophore of *Sarcinella*. **6.** *Questieriella* conidia. **7, 8.** Developing thyriothecium.

cylindriceae; conidia solitaria, acrogena, subspherica, ovalis, sarciniformes, 2–7 cellulae, constrictus ad septatae, 25–38 × 18–32 µm, parietus glabrus, brunneus.

Colonies amphigenous, thin, scattered, up to 3 mm in diameter. Hyphae slightly wavy, hyphal branching mostly opposite, alternate to irregular, at acute to wide angles, loosely reticulate, cells 15–28 × 2–5 µm. Appressoria alternate to unilateral, one-celled, globose, with a broad base, entire, 7–8 × 5–8 µm. *Questieriella* conidia scattered in the colonies, few in number, scattered, 33–38 × 7–10 µm, 3-septate, constricted at the septa, smooth–walled, pale–brown. *Sarcinella* conidiophores simple, micronematous, mononematous, unicellular to septate, 5–20 × 2–5 µm; conidiogenous cells integrated, monoblastic, terminal, cylindrical; conidia solitary, acrogenous, subspherical, oval, sarciniform, 2–7-celled, constricted at the septa, 25–38 × 18–32 µm, smooth-walled, brown.

Material examined – India, Kerala, Wayanad, 16th mail Padinharathara, on living leaves of *Tamarindus indica* L. (Caesalpinia-

ceae), 10 October 2010, M.C. Riju TBGT 4512 (holotype). Part of the collection deposited in HCIO, New Delhi.

This fungus was associated with the colonies of *Meliola tamarindi*.

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