Studies on Foliicolous fungi in subcoastal area in Thiruvarur district of Tamil Nadu

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Abstract

This communication deals with the description and illustration of four species of foliicolous fungi viz., *Asterina lawsoniae*, *Meliola mangiferae*, *Oidium ramakrishnanii* and *Ravenelia sessilis* recorded from *Lawsonia inermis* (Lythraceae), *Mangifera indica* (Anacardiaceae), *Phyllanthus amarus* (Euphorbiaceae) and *Albizia lebbeck* (Mimosaceae), respectively, collected from the subcoastal area of Thiruvarur District in Tamil Nadu, South India.

Keywords : *Asterina,* fungi, *Meliola, Oidium, Ravenelia*

INTRODUCTION

Good number of fungal species have been added by Indian researchers(Narayanasamy and Ramakrishnan, 1967-68; Hosagoudar and Goos, 1990; Hosagoudar, 2004). However, during our recent survey, a number of collections exhibiting leaf infections have been encountered in Thiruvarur district of Tamil Nadu, South India. Of these, four taxa: *Asterina lawsoniae*, *Meliola mangiferae*, *Oidium ramakrishnanii* and *Ravenelia sessilis* occurring on *Lawsonia inermis* (Lythraceae), *Mangifera indica* (Anacardiaceae), *Phyllanthus amarus* (Euphorbiaceae) and *Albizia lebbeck* (Mimosaceae), respectively, are described and illustrated. All the materials have been deposited in the Microbiology Division, Herbarium of Sengammal Thayaar Educational Trust Women's College, Sundarakkottai, Mannargudi, Tamil Nadu, South India.

MATERIALS AND METHODS

The foliicolous fungi infect leaves, soft stems and tender shoots. Collections of these fungi are much easier than those of the fleshy fungi. While collecting the infected plant parts, field notes were made regarding their pathogenicity, nature of colonies, nature of infection, locality, altitude, etc. For each collection a separate field number was given. In the field such infected plants were collected separately in polythene bags with the host twig. These infected plant parts were pressed neatly and dried in between blotting papers. Regular transfer of the collections to the fresh and dry blotters ensured the dryness of the material. After ensuring their dryness, they were kept in manifold or butter paper folders. Later, these folders were placed in thick paper envelopes of convenient size with the name of the host, locality, date of collection, place of collection, name of the collector with the field numbers written on the top corner. These envelopes were serially arranged in a rack based on their collection numbers. Frictions between the envelopes and the material were avoided in order to keep the fungal parts intact. Such materials were later used for the microscopic study.

For microscopic studies, nail polish technique was used. A drop of natural coloured or hyaline nail polish without gilt, applied on the selected colonies so as to form a thin film without disturbing the colonies. The film was allowed to dry in dust free chambers. After ensuring the dryness, the film was lifted up with the help of a razor blade. A drop of DPX was placed on a clean slide spread evenly on it. The lifted film was placed on the spread DPX. One to two drops of DPX were poured on the centre of the flip and a coverslip was gently placed over it by avoiding the air bubbles. This slide was labeled with a sticker with the host name or with field collection numbers.

These slides were allowed to dry in a dust free chamber for a couple of days. Excess DPX was easily removed after drying (Hosagoudar and Kapoor, 1985). Microscopic observations and camera lucida (Mirror type) drawings were made in Nikon compound microscope.The identity of the fungus was confirmed with the help of monographs (Hansford, 1961, Hosagoudar, 1996).

TAXONOMIC DESCRIPTION

Asterina lawsoniae **Henn. & Nym.** (Fig.- 1)

Colonies amphigenous, caulicolous, often infect the soft portion of the stem and the plant can be noticed even from a distance during winter. Hyphae flexuous, branching irregular at acute to wide angles, loosely to closely reticulate, cells 9-16 x 3-5 µm. Appressoria alternate, scattered, sessile, unicellular, ovate, mostly globose, 1-3- times sublobate to lobate, 4-8 x 4-7 µm. Thyriothecia scattered, orbicular, up to 120 µm in diameter, dehisce stellately at the centre, margin crenate;

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asci few to many, octosporous, ovate to globose, 30-36 µm in diameter; ascospores conglobate, brown, uniseptate, constricted at the septum, 18-22 x 8-10 µm, wall smooth. Pycnothyria similar to thyriothecia, mixed with thyriothecia, orbicular, smaller; pycnothyriospores pyriform, brown, unicellular, 14-17 x 7-9 µm.

Materials examined: On leaves of *Lawsonia inermis* L. (Lythraceae), in subcoastal area, Thiruvarur, May 15, 2008, A. Durga devi HSTET.

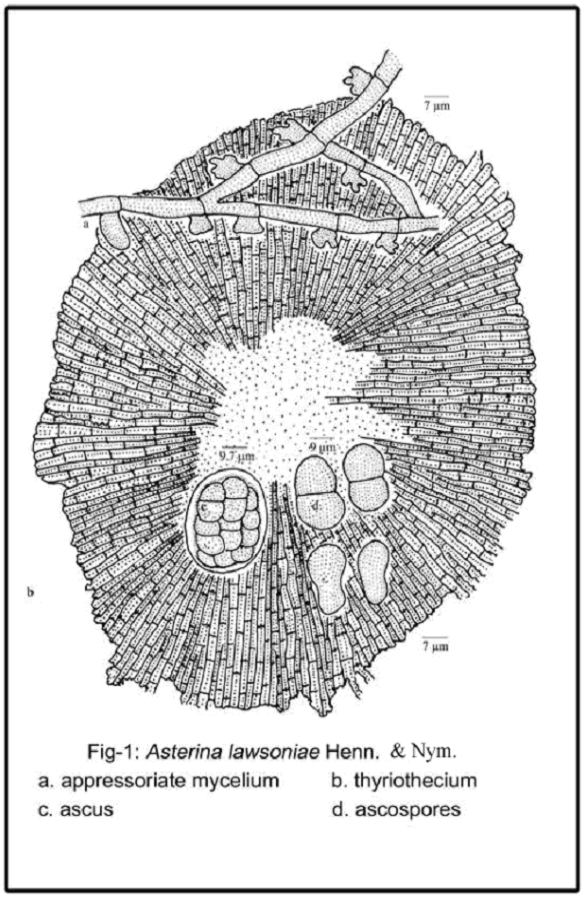

Fig-1: *Asterina lawsoniae* Henn. & Nym.
a. appressoriate mycelium b. thyriothecium
c. ascus d. ascospores

Meliola mangiferae Earle **(Fig. 2)**

Colonies hypophyllous, thin, velvety, up to 4 mm in diameter. Hyphae substraight to crooked, branching opposite to irregular at wide angles, loosely reticulate, cells 27-40 x 5-6.5 µm. Appressoria alternate, mostly unilateral and variously curved, 24-31 µm long; stalk cells cylindrical to cuneate, 3-6.5 µm long; head cells ovate, versiform, attenuated and rounded at the apex, entire, predominantly curved, 21-25 x 9-12.5 µm. Phialides mixed with appressoria, alternate to opposite, elongated, 21-28 x 8-9.5 µm. Mycelial setae scattered, simple, straight, acute, obtuse to 2-3 dentate at the tip, up to 860 µm long; Perithecia scattered, verrucose, up to 175 µm, surface cells conoid and projecting; ascospores obovoidal to ellipsoidal, middle cell slightly larger, 49-56 x 18-22 µm (Fig-2).

Materials examined: On leaves of *Mangifera indica* Linn. (Anacardiaceae), in subcoastal area, Thiruvarur, May 18, 2008, A. Durgadevi.

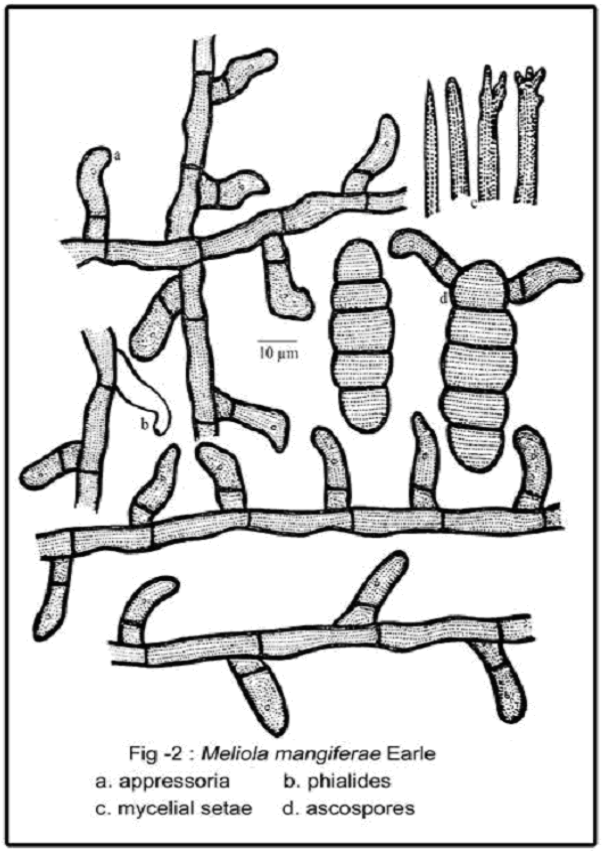

Fig -2 : *Meliola mangiferae* Earle
a. appressoria b. phialides
c. mycelial setae d. ascospores

Oidium ramakrishnanii Hosag. **(Fig. 3)**

Infection covered the entire aerial parts with white powdery appearance, host growth stunted. Hyphae branched, septate 3.5-5.5 µm wide. Appressoria nipple shaped. Conidiophores straight, erect, 64.5-121.5 µm long; foot cells straight to slightly flexuous, 30-57 x 5.5-7.5 µm, followed by 1-2 shorter cells of equal length. Conidia in chains, ovoidal to cylindrical, 15.5-42 x 7.5-11.5 µm, 2-6 guttulations in each conidia. Germ tube apical, simple.

Materials examined: On leaves of *Phyllanthus amarus* Schum & Thonn. (Euphorbiaceae), in subcoastal area, Thiruvarur, May 28, 2008, A. Durgadevi.

Ravenelia sessilis Berk. **(Fig. 4)**

Spermogonia and aecia not seen. Uredinia hypophyllous, brown, scattered; urediniospores subglobose to ellipsoidal, 19-26 x 13-19 µm, wall up to 1 µm thick, yellow, echinulate, germ pores obscure. Telia hypophyllous, brown to black; teliospore head convex, chestnut brown with hyaline papilla, consists of 6-8-

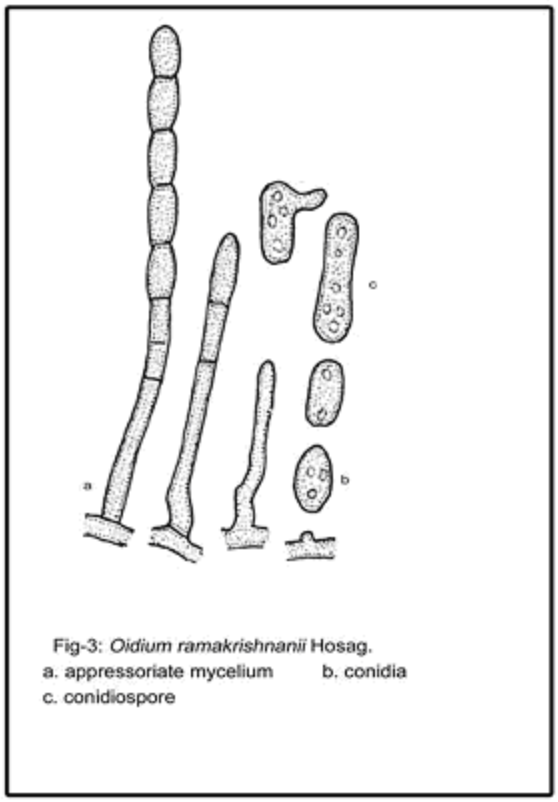

Fig-3: *Oidium ramakrishnanii* Hosag.
a. appressoriate mycelium b. conidia
c. conidiospore

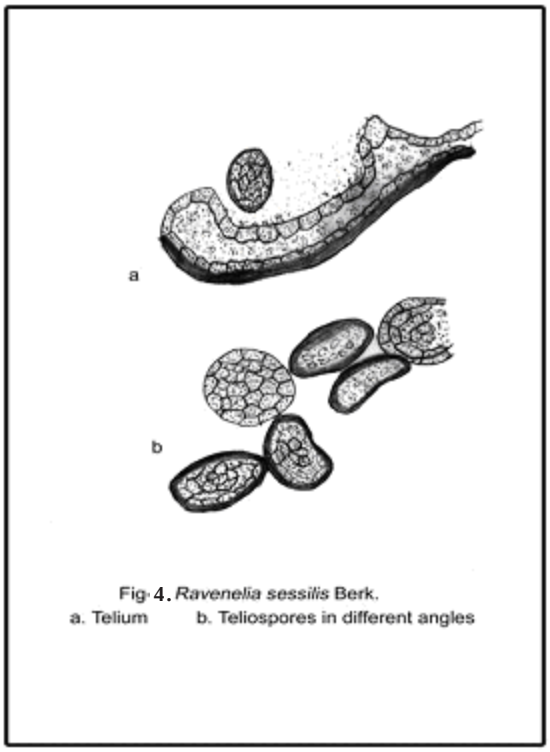

Fig. 4. *Ravenelia sessilis* Berk.
a. Telium b. Teliospores in different angles

cells, 96-112 x 89-109 µm; cysts hyaline; teliospores one celled, 22-26 x 13-16 µm, wall 2-3 µm thick, apex 6-7 µm thick, chestnut brown, pedicels deciduous.

Materials examined: On leaves of *Albizia lebbeck* (L.) Benth. (Mimosaceae), in subcoastal area, Thiruvarur, May 25, 2008, A. Durgadevi.

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