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Additions of the genus *Appendiculella* from south India

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Appendiculella anacardii and *A. sapindae* causing leaf spots on *Anacardium occidentale* L. and *Sapindus emarginatus* Vahl respectively were collected from southern states of India. These are described and illustrated in this paper. The type specimens have been deposited in the HCIO, Division of Plant Pathology, IARI, New Delhi.

Key words : *Appendiculella*, new species, taxonomy, biodiversity

INTRODUCTION

Some interesting ascomycetous fungi were collected from south India during 2002-2003. This paper deals with the description of two new ascomycetous fungi.

MATERIALS AND METHODS

Diseased specimens of *Anacardium occidentale* L. and *Sepindus emarginatus* Vahl were brought to the laboratory and microscopic observations were made by making semipermanent, well stained, sealed slides to record observations. Microphotographs were taken and Camera lucida drawings showing all possible details of morphology and ontogeny of reproductive propagules with measurements of different structures were also made. Identification of the species was done with the help of upto date literature available. The materials have been deposited in H.C.I.O., New Delhi, India.

RESULTS AND DISCUSSION

Appendiculella anacardii Prameela and Choudhry sp. nov. (Fig. 1)

Coloniae epiphyllae, amphiginae, hypophyllae. Epiphyllae coloniae velutinae, tenues, patentiae vel 6 mm diam ; coloniae raro ad infra faciei folli. Hyphae rectae, irregulariter, flexiosae, atro brunne.

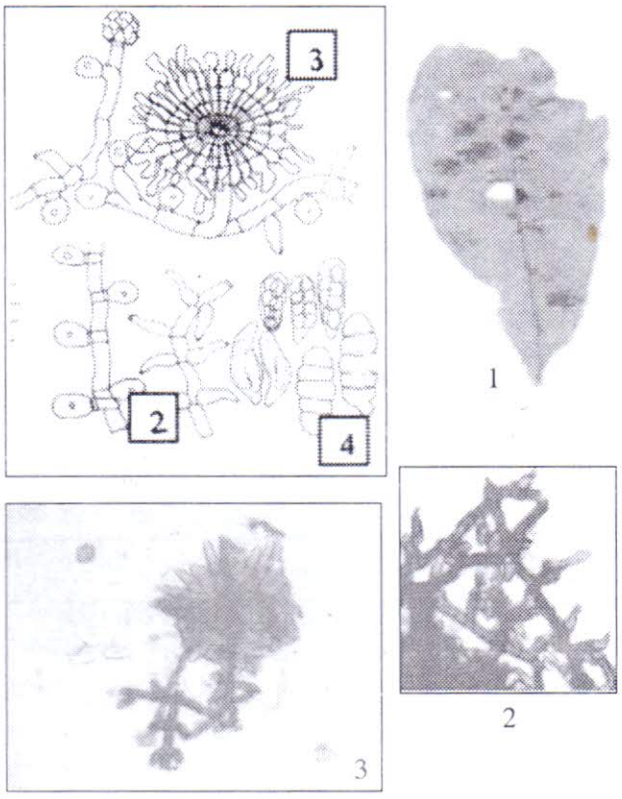

Fig. 1 : *Apendiculella anacardii* sp. nov.
1. Symptoms, 2. hyphopodia, 3. perithecia, 4. spores.

Hyphae 4-10 µm laxe, cellulae, 15-25 µm longa, plerumque laxe vel dense, reticulatae, opposite acutique ramosae. Hyphopodia alternate, antrorsa, 5-10 µm longa. Cellula besali cylindracea vel cuneata, 2-4 µm longa. Cellula epicali ovata vel sub globosa, 10-20 × 8-16 µm. Phialides in hyphis

distinctis, opposite, ampulliformis, 15-25 × 7-10 µm size. Non setae mycelialies. Perithecia laxe dispersa, hyphopodia conidiogenae, gerentibus, circumcinctae. Peritheciaatrae, globosa, ad 80-100 µm diam. Ascosporae atro brunnae, oblonga, ellipsoidea, 4-septatae. Constrictae ad septa, 40-50 × 15-20 µm.

In foliis vivis *Anacardiam occidentale* L (Anacardiaceae), Prameela, Vetapalem, A. P., India, June, 2002, H. C. I. O. No. 45, 387.

Colonies epiphyllous, amphigenous, hypophyllous. Epiphyllous colonies velvety, thin, spreading to 6 mm diam. while colonies on lower surface of leaves are scarcely visible. Mycelium straight or sinuous, irregularly flexuous and dark brown. Hyphae 4-10 µm wide, cell 15-25 µm long, branching loosely or closely reticulate, opposite at acute angles. Hyphopodia alternate, antrose, 5-10 µm long. Stalk cell cylindrical to cuniate, 2-4 µm long. Head cell clavate, ovate to sub globose, 10-20 × 8-16 µm size. Phialides borne on separate mycelium or along with hyphopodia, scattered, opposite or alternate, ampulliform, 15-25 × 7-10 µm size. Mycelial setae not observed. Perithecia loosely scattered, each araising from solid disc, and later surrounded at the base by radiating septate appendages and are black, globose, 80-100 µm in diam. Ascospores dark brown, oblong, cylindric to ellipsoidal with rounded ends, 4-septate, constricted at the septa, 40-50 × 15-20 µm in size.

The proposed species, *A. anacardii* has been compared with 3 other parasitic spp. of *Appendiculella* reported from India. (Table 1). The data reveals that the proposed fungal specimen is different in shape and size of ascospores, in having phialides borne on separate mycelium and in smaller size and structure of perithecia having radiated appendages. Comparison with other *Appendiculella* species, *A. anacardium* showed distinct morphological and taxonomical characters and also there was no report of occurrence of *Appendiculella* on *Anacardium occidentale.*

Looking at the description, illustration and discussion it is concluded to keep it as a new taxon of *appendiculella.* No spp. of *Appendiculella* appears to have been recorded on any other membe. of Anacardaceae.

***Appendiculella sepindae* Prameela and Choudhry sp. nov. (Fig. 2)**

Coloniae epiphyllae, amphiginae, hypophyllae. Epiphyllae coloniae velutinae, tenues, patentiae vel 2-5 mm diam : coloniae raro ad infra faciei folii. Hyphae ractae, irregulariter, flexuosae, atro brunne. Hyphae 4-8 µm laxe, cellulae, 15-30 µm longa, plerumque laxe vel dense, reticulatae, opposite acutique ramosae. Hyphopodia alternate, antrorsa, 8-10 µm longa. Cellula basali cylindracea vel cuneata, 2-5 µm longa. Cellula epicali ovata vel sub globosa, 8-18 × 8-12 µm. Phialides in hyphis

Table 1 : Comparative account of *Appendiculella anacardii* sp. nov. and *A. sapindae* sp. nov. with other species.

Name of the species	Colonies	Phialides & Hyphopodia	Setae	Ascospores	Perithecia
A. calophylli ver. apetali Hosagouda *et al* (1994)	Hyphophyllous, crustose	Phialides mixed with hyphopodia, ampulliform	Absent	obvoidal 43-46.5 × 15-18.5 µm 4-septate	125 µm. Appendages mammiform, hamate at the tip, scattered
A. calostroma Kar & Maity (1972)	amphigenous	phialides mixed with hyphopodia, ampulliform, conoid	Absent	Curved 40-43.5 × 15-18 µm 3-septate	300 µm. grouped at the center of colony. Appendages cylindrical, twisted, rounded at the apex.
A. hoveniae Kar & Maity (1971)	amphigenous	phialides mixed with hyphopodia, ampulliform, conoid	Absent	Straight to curved, 37-42 × 15-18.5 µm 3-septate	scattered, 225 µm. appendages cunoid, simple, 62 µm long.
A. anacardii sp. nov	epiphyllous hyphophyllous	phialides borne on separate mycelium	Absent	cylindric to ellipsoidal, 40-50 × 15-20 µm	arising from solid disc, surrounded by rediating apendages, 80-100 µm.
A. sapindae sp. nov	epiphyllous hyphophyllous	phialides borne on separate mycelium or along with hyphopodia	present	oblong, cylindric 30-50 × 12-18 µm	arising from solid disc and surrounded by larviform apendages, 120 µm size.

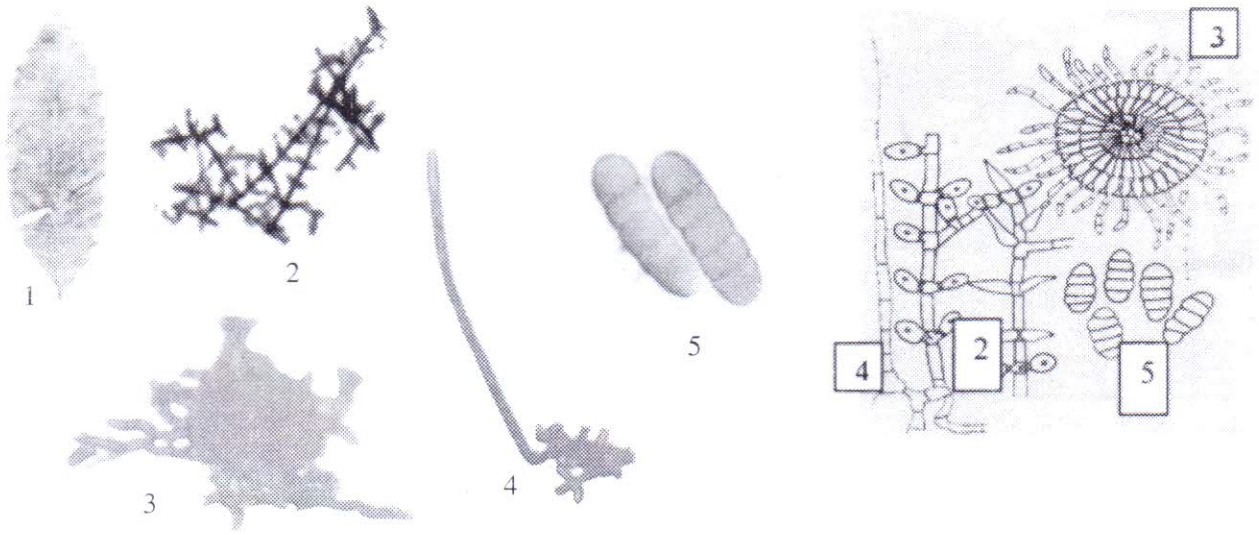

Fig. 2 : *Apendiculella sepindae* 1. Symptoms, 2. Hyphopodia, 3. Perithecia, 4. Mycelial seta, 5. spores.

distinctis, opposite, ampulliformis, 10-30 × 5-12 µm size. Setae myceliales numerosae, rectae, dispersa, septatis, atrobrunne, ad 600 µm long. Perithecia laxe dispersa, hyphopodia conidiogenae, gerentibus, circumcinctae. Perithecia atrae, globosa, ad 150 µm diam. Ascosporae atro brunnae, oblonga, ellipsoidea, 4-septatae. Constrictae ad septa, 30-45 × 10-18 µm.

In foliis vivis *Sapindus emarginatus* Vahl. (Sapindaceae), Prameela, Mangalagiri, A. P. India., June 2002, H.C.I.O. No. 45,386.

Colonies epiphyllous, amphigenous, hypophyllous. Epiphyllous colonies velvety, thin, spreading to 2-5 mm diam, while hypophyllous growth is scarcely visible. Mycelium straight or sinuous, irregularly flexuous and dark brown. Hyphae 4-8 µm wide, cell 15-30 µm long, branching loosely or closely reticulate, opposite at acute angles. Hyphopodia alternate, antrose, 8-10 µm long. Stalk cell cylindrical to cuniate, 2-5 µm long. Head cell clavate, ovate to sub globose, 8-18 × 8-12 µm size. Phialides borne on separate mycelium or along with hyphopodia, scattered, opposite or alternate, ampulliform, some times bearing hyphopodia, 10-30 × 5-12 µm size. Mycelial setae numerous, scattered, straight, septate, dark brown, upto 600 µm long. Perithecia loosely scattered, each araising from solid disc, and later surrounded at the base by radiating hyphopodia, developing into larviform septate appendages and are considerably swollen at each end and are black, globose, upto 120 µm in diam. Ascospores dark brown, oblong, cylindrical to ellipsoidal with rounded ends, 4-septate, constricted at the septa, 30-50 × 12-18 µm in size.

So far no species of *Appendiculella* has been reported on this host and also host family. From the comparative account (Table 1) it can be concluded that *A. sapindae* differ from other species by the presence of 600 µm long, straight mycelial setae, having the phialides borne both on separate mycelium and along with hyphopodia and the structure of perithecia which is surrounded by larviform appendages and also the smaller size ascospores. There was no report of occurrence of *Appendiculella* on *Sapindus emarginatus* and also on this host family. Therefore, *A. sapindae* has been described as a new species.

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