

A new species of the genus *Englerula* from India

Hosagoudar VB^{1*}, Sabeena A¹ and Kamarudeen M²

¹Tropical Botanic Garden and Research Institute, Palode 695 562, Thiruvananthapuram, Kerala, India

²Department of Botany, Iqbal College, Peringammala, Palode 695 563, Thiruvananthapuram, Kerala, India

Hosagoudar VB, Sabeena A, Kamarudeen M. 2011 – A new species of the genus *Englerula* from India. *Mycosphere* 2(3), 215–217.

Englerula coscinii sp. nov. which infects the leaves of *Coscinium fenestratum* is described and illustrated. A key and the comparative account of all the species of the genus *Englerula* is provided.

Key words – India – Kerala – Black mildew – new species

Article Information

Received 8 April 2011

Accepted 6 June 2011

Published online 24 July 2011

*Corresponding author: Hosagoudar VB – e-mail – vbhosagoudar@rediffmail.com

Introduction

Coscinium fenestratum, a critically endangered and highly-traded medicinal plant, has become very important in recent years due to its rarity and huge demand in the medicinal plant sector (Tushar et al. 2008). This plant was found to be infected with a black mildew fungus and its study revealed that it belonged to the genus *Englerula* (Fig. 1). Hennings (1904) introduced the monotypic genus *Englerula* with its type, *E. macarangae* Henn. Höhnel (1909) added *Englerula carnea* (Ellis & Mart.) Hohn. which was based on *Asterina carnea* Ellis & Mart. However, Höhnel (1919) later considered this to be the type species of the genus *Rhytidenglerula* as *R. carnea* (Ellis & Mart.) Hohn. (Muller & Arx 1962). Theissen (1915) added *Englerula medinellae* (Racib.) Hohn. based on *Balladyna medinellae* Racib. but it was considered to be the type species of *Thrauste* Theiss. as *T. medinellae* (Racib.) Theiss., *Englerula ingae* Bat. & Maia, *E. mexicana* Theiss., *E. negeriana* Syd. & P. Syd. and *E. strewiae*. Theiss are the doubtful species of this genus. Muller & Arx (1962) have recognized six species of the genus *Englerula* known on the members of Anacardiaceae, Burseraceae, Rosaceae and Sapindaceae. This is the first report of the genus *Englerula* on



Fig. 1 – Infected leaves.

members of the family Menispermaceae.

Methods

Fungal colonies infected the leaves were scraped, mounted in 5% KOH solution and then replaced by lactophenol to make the septa visible. Nail polish technique used to study the colonies *in situ* (Hosagoudar & Kapoor 1984).

Results

Englerula coscinii VB Hosagoudar, A Sabeena & M Kamarudeen, **sp. nov.** (Fig. 2, Plate 1)
Mycobank 561225

Etymology – named after the host genus.

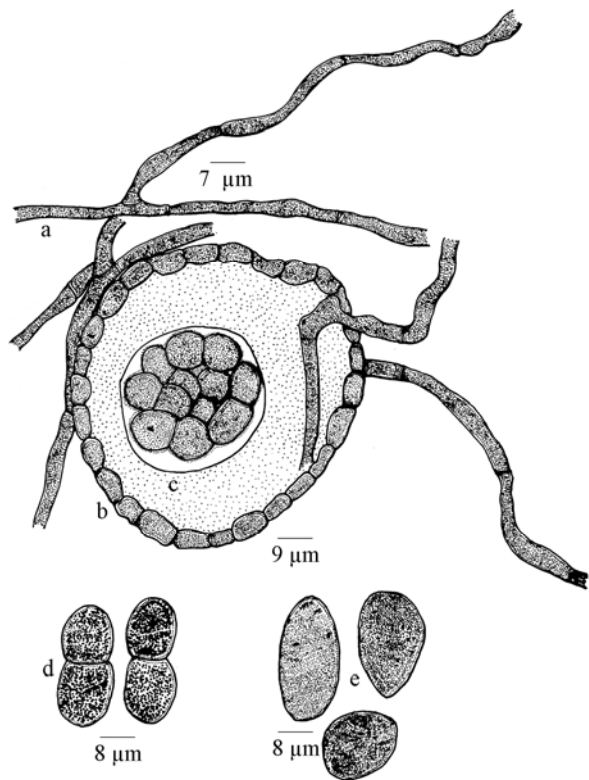


Fig. 2 – *Englerula coscinii* sp. nov. **a.** Mycelium without appressoria, **b.** Perithecium, **c.** Ascus, **d.** Ascospores, **e.** Conidia.

Coloniae amphigenae, tenues, subdensae vel densae, ad 3 mm in diam., saepe confluentes. Hyphae subrectae vel flexuosae, irregulariter acuteque ramosae, laxe vel arte reticulatae, saepe elevatae a hostus surfaces, cellulae $25\text{--}37 \times 4\text{--}5 \mu\text{m}$. Appressoria nulla. Perithecia dispersa, orbicularis, ad $87 \mu\text{m}$ diam., portio centralis dissolutus ad maturitatem et asci apertus; asci 2–3 per peritheciis, globosi, octospori, ad $38 \mu\text{m}$ diam.; ascosporae conglobatae, uniseptatae, constrictus ad septatae, $25\text{--}35 \times 12\text{--}17 \mu\text{m}$, parietus glabrus; pycnidia peritheciis similis, breviter; conidia unicellularis, oblongae, ovatae, $22\text{--}32 \times 12\text{--}17 \mu\text{m}$.

Colonies amphigenous, thin, subdense to dense, up to 3 mm in diameter, often confluent. Hyphae substraight to flexuous, branching irregular at acute to wide angles, loosely to closely reticulate, often raised from the host surface, cells $25\text{--}37 \times 4\text{--}5 \mu\text{m}$. Appressoria absent. Perithecia scattered, orbicular, up to $87 \mu\text{m}$ in diameter, central portion dissolved by exposing asci at maturity; asci 2–3 per perithecia, globose, octosporous, up to $38 \mu\text{m}$ in diameter; ascospores conglobate, uniseptate,

constricted at the septum, $25\text{--}35 \times 12\text{--}17 \mu\text{m}$, wall smooth; pycnidia similar to perithecia, smaller; Conidia unicellular, oblong, ovate, $22\text{--}32 \times 12\text{--}17 \mu\text{m}$.

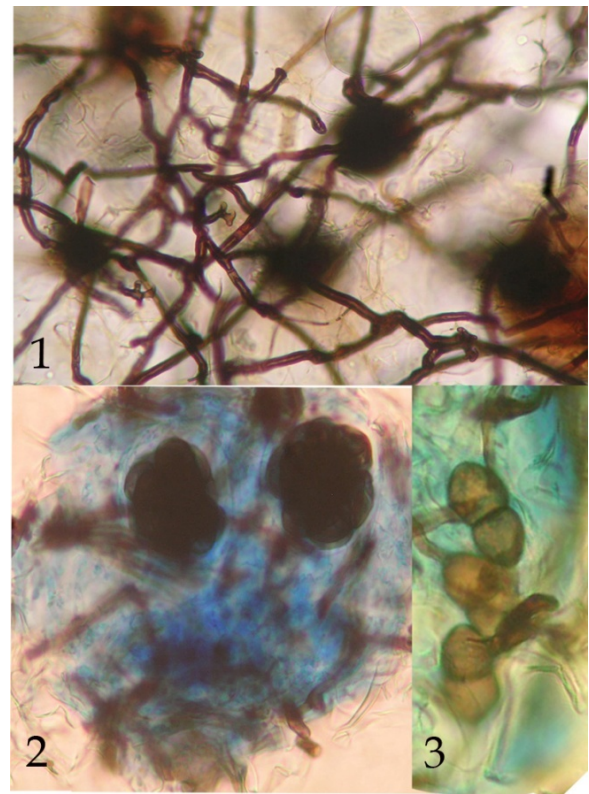


Plate 1 – *Englerula coscinii* sp. nov. (TBGT 4563) on leaves of *Coscinium fenestratum* **1** Fungal colony with perithecia, **2** Asci embedded in the perithecia, **3** Ascospores. (magnification $63 \times 10x$).

Material examined – INDIA, Kerala, Idukki, Kulamavu, Medicinal Plants Conservation Area, on leaves of *Coscinium fenestratum* (Gaertn.) Colebr. (Menispermaceae), 7 September, 2001, M. Kamarudeen TBGT 4563 (holotype). Part of the collection has been deposited in HClO, New Delhi.

Based on the size of ascospores and ascomata, this new species can be compared with *E. macarangae* (Table 1) but differs from it in having smaller perithecia ($87 \mu\text{m}$ in contrast to $100\text{--}180 \mu\text{m}$).

Key to the species

1. Ascospores more than $40 \mu\text{m}$ long
.....*E. xanthina*
1. Ascospores less than $40 \mu\text{m}$ long 2

Table 1 Comparative account of the *Englerula* species.

	Species	Colonies	Perithecia (μm)	Asci (μm)	Ascospores (μm)	Host
1	<i>E. coscinii</i> sp. nov.	Amphigenous, thin to dense	up to 87 in diameter	up to 38 in diameter	22–32 \times 12–17	<i>Coscinium</i> <i>fenestratum</i>
2	<i>E. elmeri</i> (Sydow) Arx	–	–	–	10–14 \times 4–6	<i>Canarium</i> sp.
3	<i>E. leonensis</i> Sydow	Hypophyllous	100–180	50–65 \times 30–35	22–25 \times 12–13	<i>Macaranga</i> <i>barteri</i>
4	<i>E. macarangae</i> P. Henn.	Hypophyllous	100–180	50–70 \times 35–45	25–36 \times 13–16	<i>Macaranga</i> <i>capensis</i>
5	<i>E. semecarpi</i> Hansf.	Hypophyllous	100–120	30–35 \times 15–18	Up to 15 long, up to 7 broad	<i>Semecarpus</i> <i>heterophylla</i>
6	<i>E. sydowii</i> (Petra) Arx	–	–	–	12–17 \times 6–8	<i>Aphania loheri</i>
7	<i>E. xanthina</i> Syd.	Hypophyllous	Up to 170	55–75 \times 55–70	37–44 \times 18–21	<i>Parinarium</i> <i>macrophyllum</i>

2. Ascospores more than 30 μm long 3

2. Ascospores less than 30 μm long 4

3. Perithecia more than 100 μm in diam.

..... *E. macarangae*

3. Perithecia less than 100 μm in diam.

..... *E. coscinii*

4. Ascospores more than 20 μm long.....

..... *E. leonensis*

4. Ascospores less than 20 μm long 5

5. On *Canarium*..... *E. elmeri*

5. On other hosts..... 6

6. On *Semecarpus*..... *E. semecarpi*

6. On *Aphania* *E. sydowii*

Acknowledgements

We thank Dr. A. Subramoniam, Director, Tropical Botanic Garden and Research Institute, Palode for use of facilities.

References

Hennings P. 1904 – Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 34, 49.

Höhnelt F von. 1909 – Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften, Math.-naturw. Klasse, Abt. I 118, 866.

Höhnelt F von. 1919 – Fragmente zur Mycologie, Nrn. 1058–1091.

Höhnelt F von. 1919 – Sitzungsber. K. Ak. Wiss. Wien, math.-nat. Kl., 1. Abt., 127, 329–393.

Hosagoudar VB, Kapoor JN. 1985 – New technique of mounting meliolaceous fungi. Indian Phytopathology 38, 548–549.

Müller E, Arx JA von. 1962 – Die Gattungen der didymosporen Pyrenomyceten. Beiträge zur Kryptogamenflora der Schweiz 11, 156.

Theissen F. 1915 – Verhandlungen der Zoologisch-Botanischen Gesellschaft Wien 66, 327.

Tushar KV, George S, Remashree AB, Balachandran I. 2008 – *Coscinium fenestratum* (Gaertn.) Colebr. A review on this rare, critically endangered and highly-traded medicinal species. Journal of Plant Science 3, 133–145.