FUNGI OF DELHI XV. LOPHOTRICHUS INDICUS SP. NOV.

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SUMMARY

Lophotrichus indicus sp.n. is described. It differs from the existing three species in possessing non-encrusted, rarely forked, terminal hairs, smaller asci, and elliptical ascospores with broad ends.

1. INTRODUCTION

The genus *Lophotrichus* was described by Benjamin in 1949, with two species. AMES (1961) added one more species. During our studies of coprophilous fungi several members of Chaetomiales were isolated, including one of the genus *Lophotrichus*. Our isolate appears to be a new species as it differs from the other three in its perithecia, neck, terminal hairs, asci, and ascospores. The species is named as *Lophotrichus indicus* after the country of its origin. This is the first report of this genus from India.

2. MATERIAL AND METHODS

The form was isolated by the same method as described in our earlier paper (SAXENA & MUKERJI 1970).

3. DESCRIPTION

Lophotrichus indicus SAXENA & MUKERJI sp. n. (*fig. 1 a-i*) Colonies moderately growing on Oat meal yeast extract agar at 27 $\pm$ 1 °C, reaching 6 to 8 cm in diameter in 10 days; initially white with compressed mycelium in the centre and a thin ring of floccose mycelium towards the periphery, circular to irregular; perithecia developed after 10 days and filled the plates in 20 to 25 days.

On Dung agar colony growth moderate, reaching a diameter of 7 to 8 cm in 10 days, white, with little or no aerial mycelium; perithecia formed after 8–10 days, abundant, filling the plates in 15–20 days. On Czapek's agar colonies slowly growing, reaching 4–5 cm in diameter in 10 days, white, with abundant aerial mycelium; forming a few perithecia after 12–15 days.

Perithecia globose to subglobose, few to many, scattered, black, 180–250 $\times$ 180–280 μ in size (*fig. 1a, b*), immersed to partially superficial, or superficial, with hyaline to light grey-brown rhizoid-like mycelium attached to the substratum, 40–50 $\times$ 2.0–2.5 μ; wall thin, membranous, carbonaceous, one- to three-

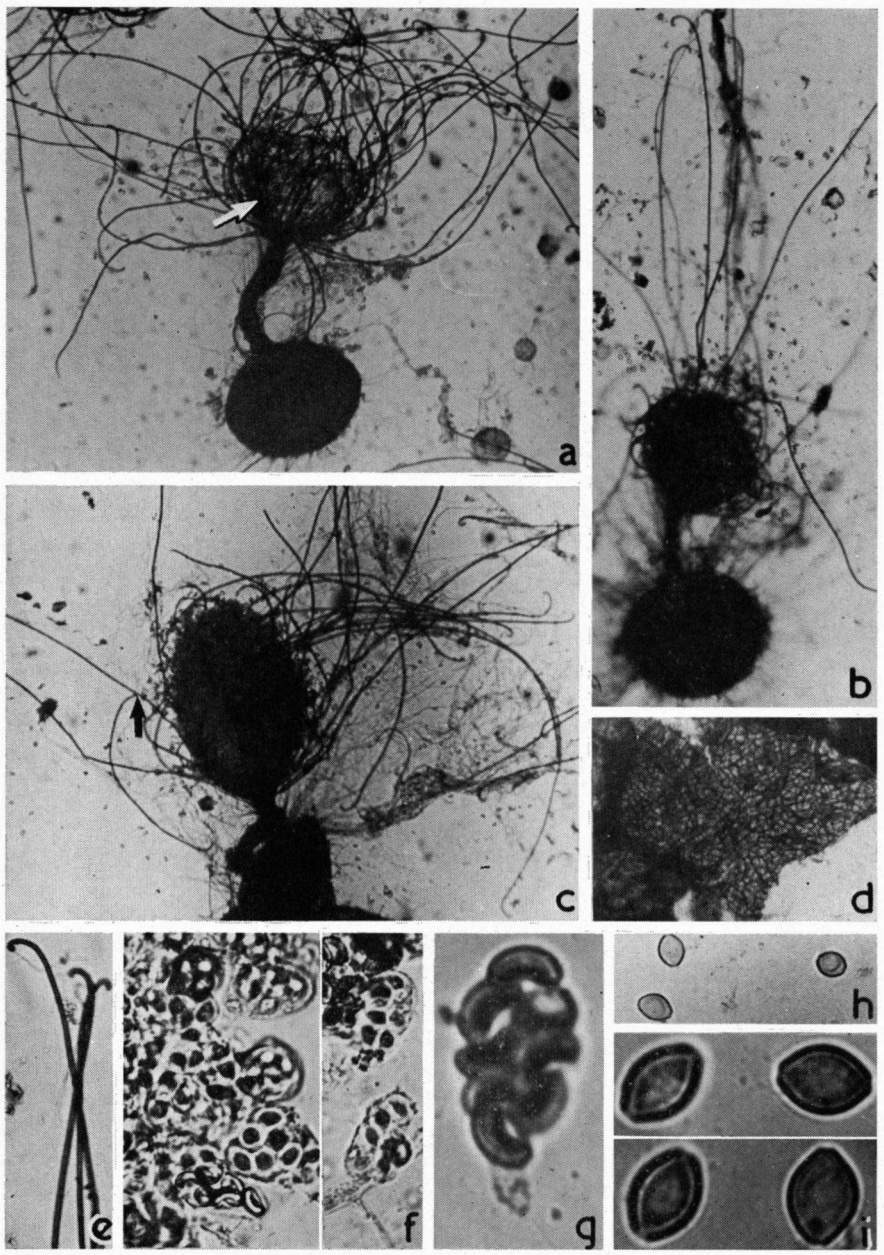

Fig. 1. *Lophotrichus indicus* Saxena & Mukerji. a, b. Perithecia with characteristic terminal hairs and mass of ascospores in the inner arched hairs × 65; c. Part of a perithecium with neck and terminal hairs × 65; d. Wall of perithecium × 250; e. Part of outer terminal hairs with curved tips × 300; f. Asci × 750; g. Single ascus × 1500; h.i. Ascospores, h × 400, i × 1200.

layered, up to 5 μ in thickness (*fig. 1d*); neck usually one, rarely two or three, hyaline and grey when young, black at maturity, 75–200 × 25–35 μ. In perithecia occurring naturally on dung pellets the neck is generally longer, 150–300 × 30–35 μ. Terminal hairs surrounding the ostiole numerous, thick-walled, with 1–5 septa (mostly towards the base), never encrusted, with subobtuse to tapering tips, distinctly of two types; outer dark, 700–1000 × 2.5–5.0 μ, major portion of their length straight or sometimes contorted but always curved at the tips (*fig. 1e*), rarely once forked (*fig. 1c*, arrow); inner smoky in colour, 400–600 × 2.5–4.5 μ, recurved inwardly and arched, with 1–4 septa, never branched (*fig. 1a*, arrow). Generally the whole crown of terminal hairs, along with the neck, detached from the perithecia at maturity. Lateral hairs inconspicuous, hyaline to somewhat dark, with 1–3 septa, 100–250 × 2–3 μ, prominent on mature fruiting bodies, with a narrow tip. Asci numerous, delicate, with thin colourless wall, subglobose, oval to obclavate, with or without a short stalk, 8-spored, 15–20 × 10–15 μ (*fig. 1f, g*). Paraphyses not observed, if at all formed possibly disintegrating at maturity of the asci. Ascospores extruded in a mass loosely held in the inner arched terminal hairs (*fig. 1b, c*) or as cirrhi, 0.5 to 0.8 mm long, light to slightly dark copper coloured in mass, singly pale-brown, sub-lemon-shaped to ellipsoid, 8–10 × 5–6 μ, thin-walled, with broad blunt ends, having distinct germ pores, measuring up to 2.0 μ in diameter, wall at the ends comparatively thin (*fig. 1h, i*).

The fungus was isolated from goat-dung pellets collected from Kingsway Camp, Old Delhi, on May 4, 1969 (A.S.S.). A living culture of this fungus has been deposited in the Commonwealth Mycological Institute, Kew, England, under reference number IMI 143072. A dry culture of the holotype (DU/KS 97) has been deposited in the Herbarium of the Department of Botany, University of Delhi.

Latin Diagnosis

Lophotrichus indicus sp.n.

Perithecia globosa vel subglobosa, nigra, 180–250 × 180–280 μ, immersa vel semiimmersa vel superficialia, substrato affixa mycelio pallide-fusco rhizoideis simili; parietibus gracilibus membranaceis; collo vulgo singulo, raro duobus vel tribus, 75–200 × 25–35 μ. Pili terminales circumostiolares numerosis, vulgo duo: externi fusco-nigri, longi, erecti, apice curvati, vulgo non furcate, interdum unifurcati, 700–1000 × 2.5–5.0 μ; interni fumosi, arcuati, introsum curvati, 400–600 × 2.5–4.5 μ. Pili laterales hyalini vel subfusci, acuminati, 100–250 × 2–3 μ. Asci plures, subglobosi vel ovali vel obclavati, stipite brevi indistincto, octospori, evanescentes, 15–20 × 10–15 μ. Ascosporae extrusae in cirrho, plerumque pallidae, singulae luteolo-cupreae, sublimoniformes vel ellipsoideae, 8–10 × 5–6 μ, poro germinationis manifesto utrumque latus, obtusae apice.

Lectus in caprae stercore ad Kingsway Camp ad Delhi, 4 Maii 1969, Leg. A.S. Saxena. Cultura viva huius formae posita est C.M.I. in Kew, Anglia, sub numero IMI 143072. Holotypus (DU/KS 97) positus in herbario mycologico, sectione botanica, universitatis Delhi.

Table 1. Comparison of the four species of *Lophotrichus*.

	L. ampullus	*L. brevirostratus*	*L. martinii*	*L. indicus*
Perithecium	Globose, 150–260 μ in diameter.	Globose, 270–310 μ in diameter	Globose, 220–330 μ in diameter.	Globose to sub-globose, 180–250 × 180–280 μ
Neck	1–3 per perithecia, 130–760 × 40–60 μ.	Single, 35–50 × 30–40 μ.	1–4, 200–1000 × 40–65 μ.	Generally 1, rarely 2 to 3 75–300 × 25–35 μ.
Terminal hair	Numerous, of one type, septate, straight or irregularly contorted, 1.6 mm × 3.8–5.3 μ, wall thick, 0.57–1.52 μ, densely encrusted, never branched, tips curved to circinate.	Few, of one type, septate, up to 1.4 mm × 3.8–4.75 μ straight, unbranched, wall thin, smooth, tapering to a narrow tip.	Numerous, of two types: (i) short, many forming a head around the ostiole, 130–450 × 3.8–6.0 μ; (ii) long, few, extending out, straight or curved, 1000 μ or more × 3.8–6.0 μ. Both septate, densely encrusted, walls thick, 1.2–2.3 μ, unbranched, flexuous, with or without curved tips.	Numerous, of two types: (i) outer straight but always curved at tips, 700–1000 × 2.5–5.0 μ, rarely once forked; (ii) inner towards ostiolar opening, highly recurved inwardly – arched 400–600 × 2.5–4.5 μ. Both with 1–5 septa, never encrusted, walls thick, 0.5–0.9 μ.
Asci	Subglobose to clavate, 20–34 × 10–20 μ.	Subglobose to clavate, 20–30 × 10–18 μ.	Subglobose to clavate, 20–36 × 11–17 μ.	Subglobose, oval to obclavate, smaller, 15–20 × 10–15 μ.
Ascospores	Lemon-shaped, apiculate, thin-walled, 6.5–10.6 × 5.3–7.6 μ, with germ-pores at both ends.	Sub-lemon shaped, with germ-pore at each end, not apiculate, 6.0–7.5 × 5.0–5.5 μ.	Lemon-shaped, apiculate, with a germ-pore at each end, 7–10 × 5.3–6.8 μ, ends thin-walled.	Sub-lemon-shaped to ellipsoid, with wide thin-walled blunt ends with germ-pore, up to 2μ wide, 8–10 × 5–6 μ.

4. DISCUSSION

In the size of the perithecium *L. indicus* is similar to *L. ampullus* Benjamin, from which it differs in having smaller necks. *L. brevirostratus* Ames has a smaller neck but its perithecium is larger than in *L. indicus*. From *L. martinii* Benjamin it differs in possessing smaller perithecia with smaller necks. It is distinct from the other three species in possessing globose to sub-globose perithecia, smaller asci, ascospores ellipsoid but always with broad, obtuse ends, and rarely with once forked terminal hairs. *Table 1* gives a comparative account of the characters of the four species.

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