TAXONOMIC STUDIES ON INDIAN MYXOMYCETES

IV. Some New Records of Liceales

by T. N. Lakhanpal* *and* K. G. Mukerji, *Department of Botany, University of Delhi, Delhi*-110007

(*Received 25 October 1975; after revision 6 February 1976*)

Four species of Myxomycetes are recorded for the first time from India, representing three genera and two families of Myxomycetes. Of these the genus *Lindbladia* was unknown from India earlier.

Introduction

This paper gives an illustrated account of four species, viz. *Reticularia lycoperdon* Bull. (Reticulariaceae), *Lindbladia tubulina* Fries, *Cribraria aurantiaca* Schrad. and *C. personii* Nann.-Brem. (Cribrariaceae). All are recorded for the first time from India.

The specimens have been submitted to the Herbarium Mycologico, Department of Botany, University of Delhi, Delhi-110007. Duplicates of all except *R. lycoperdon* have also been deposited with Mrs N. E. Nannenga-Bremekamp, Doorwerth, the Netherlands.

Reticularia lycoperdon Bull.

[*Hist. Champ. Fr.* **95**, 1791. (Fig. 1, a–c)]

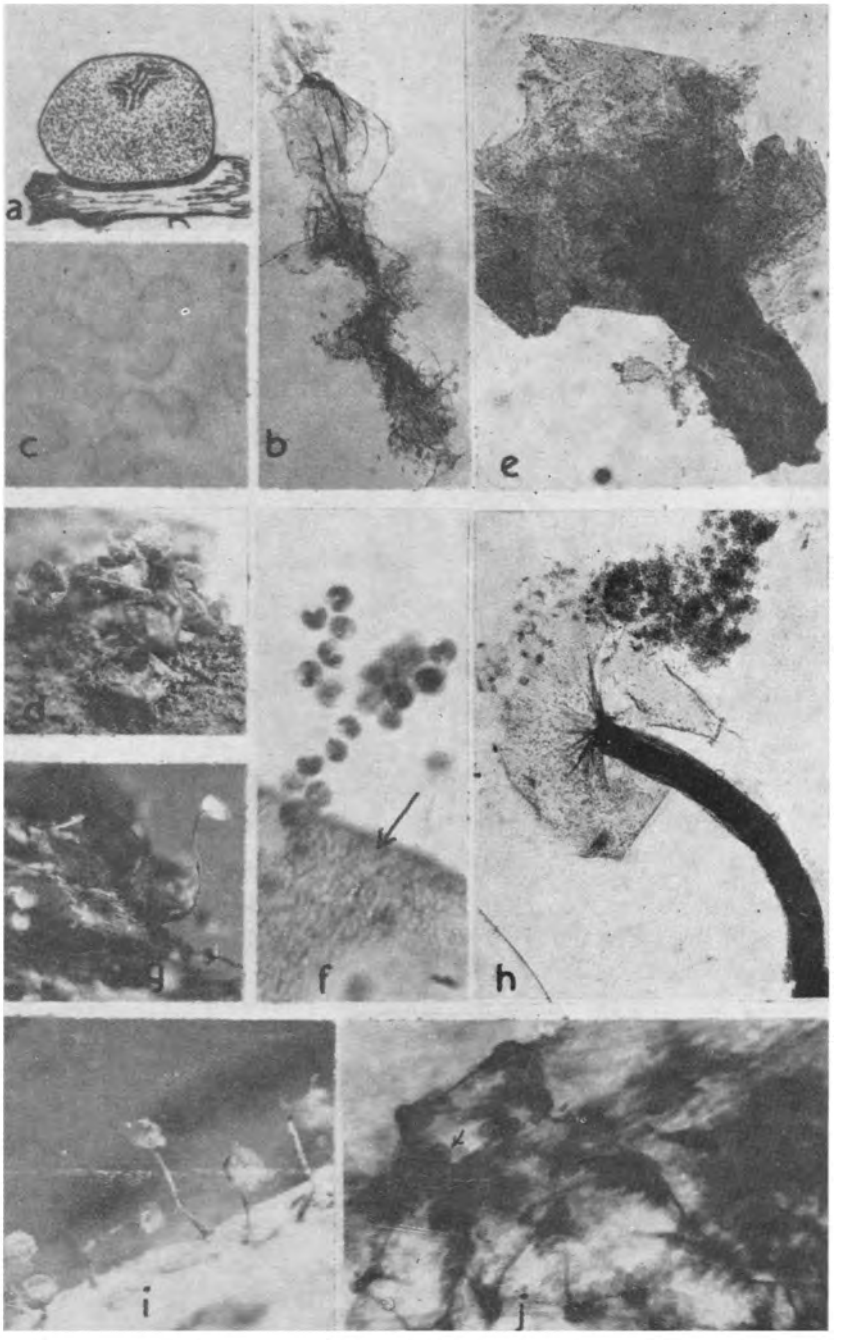
Fructifications aethaloid. Aethalia scattered, pulvinate on a broad base, silvery white or dull white, up to 3 cm in diameter; hypothallus massive, silvery white, forming a broad margin about the fruiting body; cortex thick, tough, fragile, white, smooth; dehiscence irregular or irregularly apical; pseudocapillitium abundant, threads dark brown or light brown, flattened and strand like, branched in a dendroid fashion, flexuous, pallid or ochraceous or colourless towards apices, apices free from the cortex but their bases attached by broad basal discs to the base of fructification; spore-mass rusty brown, ochraceous or subhyaline in transmitted light, globose or subglobose, free or in groups or adherent to pseudocapillitial strands in clusters, 7.5–9μ in diameter, reticulate over 2/3 surface, reticulations prominent and coarse.

Habitat—Bark of *Pinus excelsa.*

Specimens examined—H.P., Dalhousie, Lakkar Mandi, October 1971, TNL/369.

Notes — The fructifications in this population are slightly smaller than the type (see Martin and Alexopoulos 1969). Nann.-Brem. (1958) stated that in European

*Department of Botany, Hans Raj College, University of Delhi, Delhi 110007.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specimens the spores adhere in clusters to the threads of pseudocapillitium, whereas in many American collections the spores are completely free and the reticulations on them are somewhat coarser. She recognised var. *americana* for American populations. Martin and Alexopoulos (1969) did not recognise this variety as they found more or less continuous gradation among different populations of this species. The Indian population possesses spores which lie free or in small or large groups or remain adherent to the pseudocapillitial threads. This suggests that the two varieties may not be distinct and therefore worth recognition.

Specimens from Assam (Agnihothrudu 1959) are characterised by small fruiting bodies, fragile, coppery, areolate and bullate cortex, and pale rusty brown spores which are faintly reticulate. These features relate these populations from Assam to *R. jurana* Meylan. Lister (1925) and Martin (1949) treated *R. jurana* synonymously with *R. lycoperdon*, Nann.-Brem. (1958), however, recognised *R. jurana* distinct from *R. lycoperdon*, by almost the same features as characterise the Assam populations. These populations, therefore, need reinvestigation.

Lindbladia tubulina Fries

[*Summa Veg. Scand.*, **449**, 1849. (Fig. 1, d–f)]

Fructifications sporangiate, stipitate or sessile, up to 1.8 mm in length. Sporangia occur in dense close clusters, individual sporangia globose or subglobose, yellowish brown, 0.5–0.9 mm in length, 0.3–0.6 mm in diameter; peridium single, thin, tough, entire, without a peridial net, shining against light, minutely roughened externally, studded with dictydine granules which form irregular veins or are grouped in clusters, granules mostly 1μ in diameter, dark, subhyaline or ochraceous in transmitted light; during dehiscence the peridium ruptures in the upper portion of the sporangium leaving behind a deep, irregular cup which is striated at base; capillitium absent; spore-mass clay brown, pallid in transmitted light, globose, 5–7.5 μ in diameter, faintly warted. Stipe when present constriction like or well developed, cylindrical, black and opaque, in transmitted light translucent and brownish, strongly striate longitudinally, granular, 0.3–0.9 mm in length; hypothallus prominent, dark, spongy, confluent.

Habitat—Decaying gymnospermous wood.

Specimens examined — H.P., Simla, Narkanda, September 5, 1974, TNL/718a, 718b.

Notes—The two populations of *L. tubulina* from Narkanda closely resemble the type in the size, shape and nature of sporangia, size and arrangement of dictydine granules, size and markings of spores, and nature and extent of the hypothallus.

FIG. 1 *a–c. Reticularia lycoperdon* Bull.: *a*, Single aethalium × 1.5; *b*, Dendroid capillitium × 100; *c*, Spores × 500. *d–f. Lindbladia tubulina* Fries: *d*, Cluster of sporangia × 15; *e*, Single sporangium in mount × 35; *f*, Spores and dictydine granules (arrow) × 533. *g–h. Cribraria aurantiaca* Schrad: *g*, Fructifications × 9; *h*, A single sporangium in mount showing spores and dictydine granules × 500. *i–j. Cribraria personii* Nann.-Brem.: *i*, Fruiting bodies × 9; *j*, Peridial net and spores (arrow) × 555.

In these populations, however, aethaloid fruiting bodies are absent and the sporangia are with or without stipes, occurring separately or in dense clusters. A survey of literature reveals that *L. tubulina* is a highly variable species. The variations in the sporangial habit recorded above are well within the variation range of this species.

The earlier treatises mention little about the nature of the stipe. These populations are prominently stalked, the stalk has, therefore, been described in detail.

Cribraria aurantiaca Schrad.

[*Nov. Gen. Pl.*, **5**, 1797. (Fig. 1, g–h)]

Fructifications sporangiate,stipitate, up to 2 mm in length. Sporangia gregarious, erect, or nodding, globose, yellow or ochraceous brown, 0.3–0.5 mm in diameter; peridium fugaceous leaving behind a well defined calyculus at base and peridial net above; calyculus 1/3 or 1/4 the sporangial diameter, membranous, ochraceous brown, darker towards margin, shining against light, marked by streaks of dictydine granules which measure up to 2 μ in diameter, margin dentate, the teeth bearing the peridial net; peridial net reticulate, nodes large, black, pulvinate, ochraceous and elongate in transmitted light, studded with dictydine granules, internodes lighter, 4–6 arising from each node, devoid of dictydine granules, free ends few or absent; spore-mass yellowish brown, ochraceous in trasmitted light, globose, 6–7.5 μ in diameter, nearly smooth. Stipe long, subulate, broad at base and almost translucent towards apex, rugose longitudinally, purplish brown, up to 1.5 mm in length; hypothallus rotate, membranous, concolourous with stipe.

Habitat—Decaying wood of gymnosperms.

Specimens examined—H.P., Mandi, Thatchi, August, 1968, TNL/349, 350, 351, 354, 355, 356, 358a, and 362. H.P., Simla, Narkanda, September 5, 1974, TNL/727.

Notes—In populations 354 and 356 the calyculus is marked by 'concentric, granular corrugations'. This is a characteristic feature of *C. atrofusca* Martin & Lovejoy, which, however, possesses reticulate spores.

Cribraria personii Nann. Brem.

[*Proc. K. ned. Akad. Wet.*, C, **74**, 353, 1971. (Fig. 1, i–j)]

Fructifications sporangiate, stipitate, up to 2 mm in length. Sporangia densely clustered, mostly nodding, sometimes erect, ochraceous brown or fulvous, 0.4–0.7 mm in diameter; peridium fugaceous leaving a persistent cup at base and peridial net above; calyculus well defined, almost 1/3 or 1/2 the sporangial diameter, ochraceous to fulvus, finely plicate longitudinally, plications prominented by rows of dictydine granules, granules 1μ or less in diameter, margin of the cup dentate and darker; peridial net reticulate, small meshed, supported on calyculus-teeth, nodes small, angular or elongate, pulvinate, studded with dictydine granules, black, ochraceous in transmitted light, internodes 3–6 arising from each node, slender, devoid of dictydine granules, free ends rare or absent, broken internodes spine-like; spore-mass ochraceous brown, pallid in transmitted light, globose, 6–7 μ in diameter, faintly warted with some conspicuous warts on the periphery. Stalk well developed, slender,

cylindrical or slightly subulate, dark brown or purple brown at base with granular matter, pale and translucent towards apex, longitudinally striate, striations continuous on the calyculus, 0.8–1.6 mm in length; hypothallus prominent, rotate or rarely confluent, dark purple or black with lighter margin.

Habitat—Decaying wood of *Abies pindrow*.

Specimens examined—H.P., Simla, Glen, July 8, 1974, TNL/633.

Notes—This population of *C. personii* as compared to the type possesses smaller, ochraceous to fulvous sporangia, longer stipes and less prominently marked spores.

Acknowledgements

We are grateful to Professor H. Y. Mohan Ram, F.N.A., for providing facilities, to Mrs. N. E. Nannenga-Bremekamp for confirming the identity of some species, and to Dr. C. R. Babu for critically going through the manuscript. Thanks are also due to Professor B. M. Johri, F.N.A., and Principal G. P. Chopra for their encouragement and help in various ways.

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