

THE PEZIZALES OF INDIA—XVI

K. S. THIND, F.A.SC. AND K. S. WARAITCH*

(Botany Department, Panjab University, Chandigarh)

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ABSTRACT

Three new species of Pezizales, *Boudiera parvispora* from Darjeeling, *Cheilymenia simlensis* from Simla and *C. chandigarhii* from Chandigarh, are described.

INTRODUCTION

THIS paper records three new species of Pezizales, one each from Darjeeling, Simla and Chandigarh. The numbers (99–101) of these species are the serial numbers of the pezizoid flora being studied from this laboratory by Thind and his students. As mentioned under each species, the collections have been deposited in various herbaria (PAN—Herbarium of the Botany Department, Panjab University, Chandigarh, India; BM—British Museum (Natural History), London, England; C—Institute of Thallophyta, Copenhagen, Denmark; L—Rijksherbarium, Leiden, Netherlands).

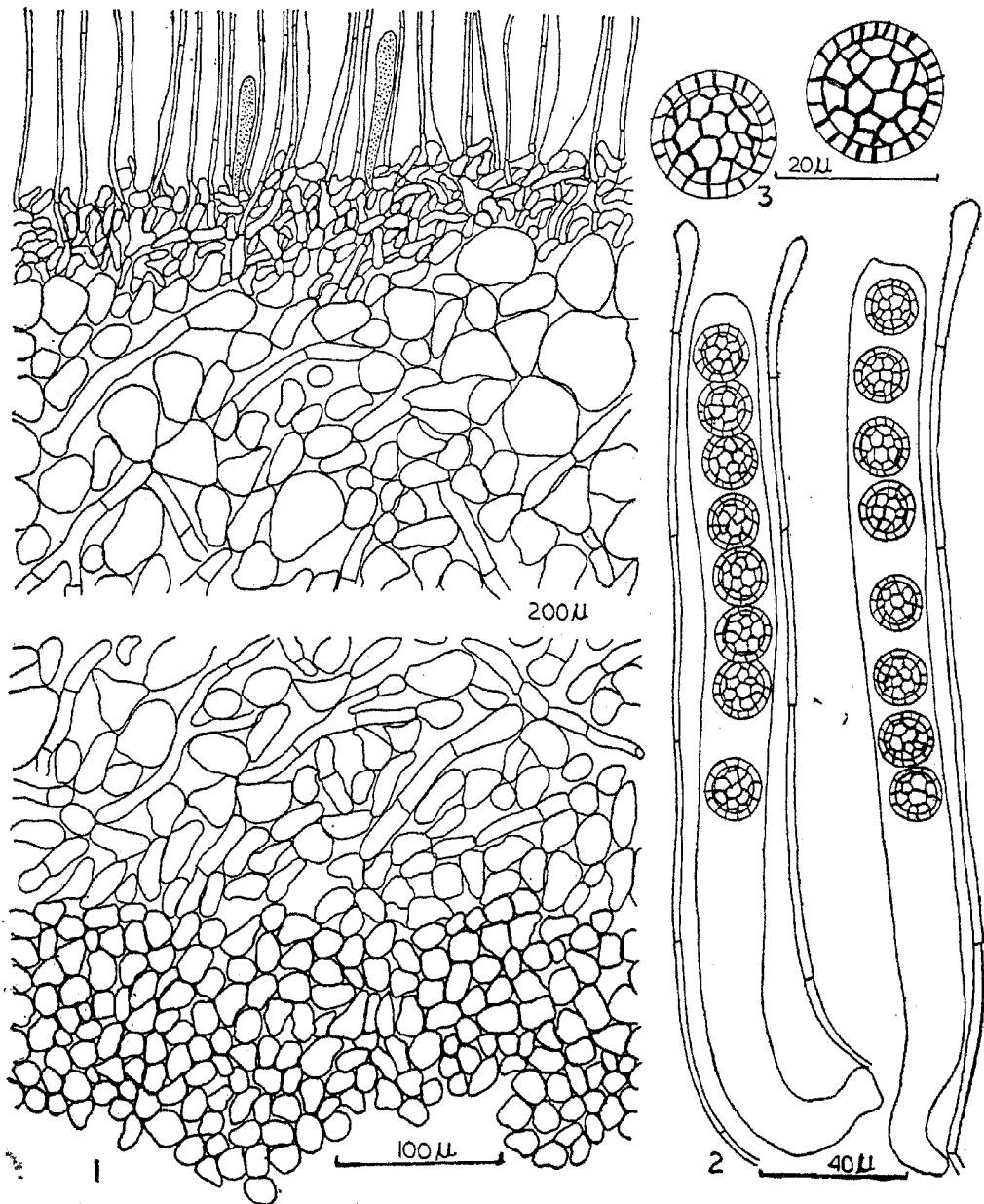
99. *Boudiera parvispora* Thind and Waraitch, sp. nov. (figures 1–3).

Apothecia usque 8 mm diam., brunnea, sessilia, tenui-cupulata usque subdiscoidea, glabra vel tuberculata; hymenium propter apices ascorum subasperatum. *Asci* 200–240 × 16–19 μ , octospori, jodi ope caerulescentes. *Ascospores* verrucis inclusis 15–17 μ , sine verrucis 13·5–15 μ diam., brunneae, oleosae, reticulatae, interstitiis 2–5 μ latis, reticulo usque 1·5 μ alto. *Paraphyses* infra usque 4 μ latae, ad apices 7 μ diam., robustae, brunneae, asperatae et subagglutinatae. *Excipulum* ectale e textura globulosa vel subangulari; *excipulum* medullosum e textura intricata compositum.

Hab. in solo: India (Tiger Hill, Darjeeling, West Bengal), October 12, 1964, n. 2549 Typus (PAN).

* Present address: Department of Horticulture, Punjab Agricultural University, Ludhiana, Punjab.

Apothecia up to 8 mm in diameter, densely gregarious to crowded, sessile, shallow cupulate to subdiscoid, fleshy; external surface brown, smooth to slightly roughened due to heaps of ectal cells; hymenium brown to blackish brown. *Asci* 200–240 \times 16–19 μ , 8-spored, strongly protruding out, cylindrical-clavate, apex obtuse to subtruncate, J+. *Ascospores* 15–17 μ in diameter including ornamentation and 13.5–15 μ without ornamentation, partially



Figures 1–3. *Boudiera parvispora*. FIG. 1. V.S. of apothecium showing ectal excipulum of textura angularis and medullary excipulum of textura intricata with intermixed subglobular cells : FIG. 2. Asci and paraphyses : FIG. 3. Reticulate ascospores.

biseriate at first but uniseriate at maturity, brown, filled with small oil drops, globose, completely reticulate, meshes $2-5\mu$ wide, reticulum up to 1.5μ high. *Paraphyses* up to 4μ wide below and 7μ at the top, stout, septate, simple, brown, tips roughened and somewhat agglutinated.

Anatomy: Ectal excipulum brown, up to 180μ thick, textura globulosa to textura subangularis, cells up to $40 \times 30\mu$, slightly thick-walled, heaped at places on the surface to form tubercles; medullary excipulum brown, up to 555μ thick, textura intricata, hyphae up to 16μ wide, thin-walled, septate, branched, with intermixed thin-walled subglobular cells up to $60 \times 48\mu$; hypothecium dark brown, up to 80μ thick, densely textura intricata, hyphae up to 12μ wide.

Collected on soil in an exposed place: India (Tiger Hill, Darjeeling, West Bengal), October 12, 1964, n. 2549, Type (PAN). A portion of the type also deposited in BM.

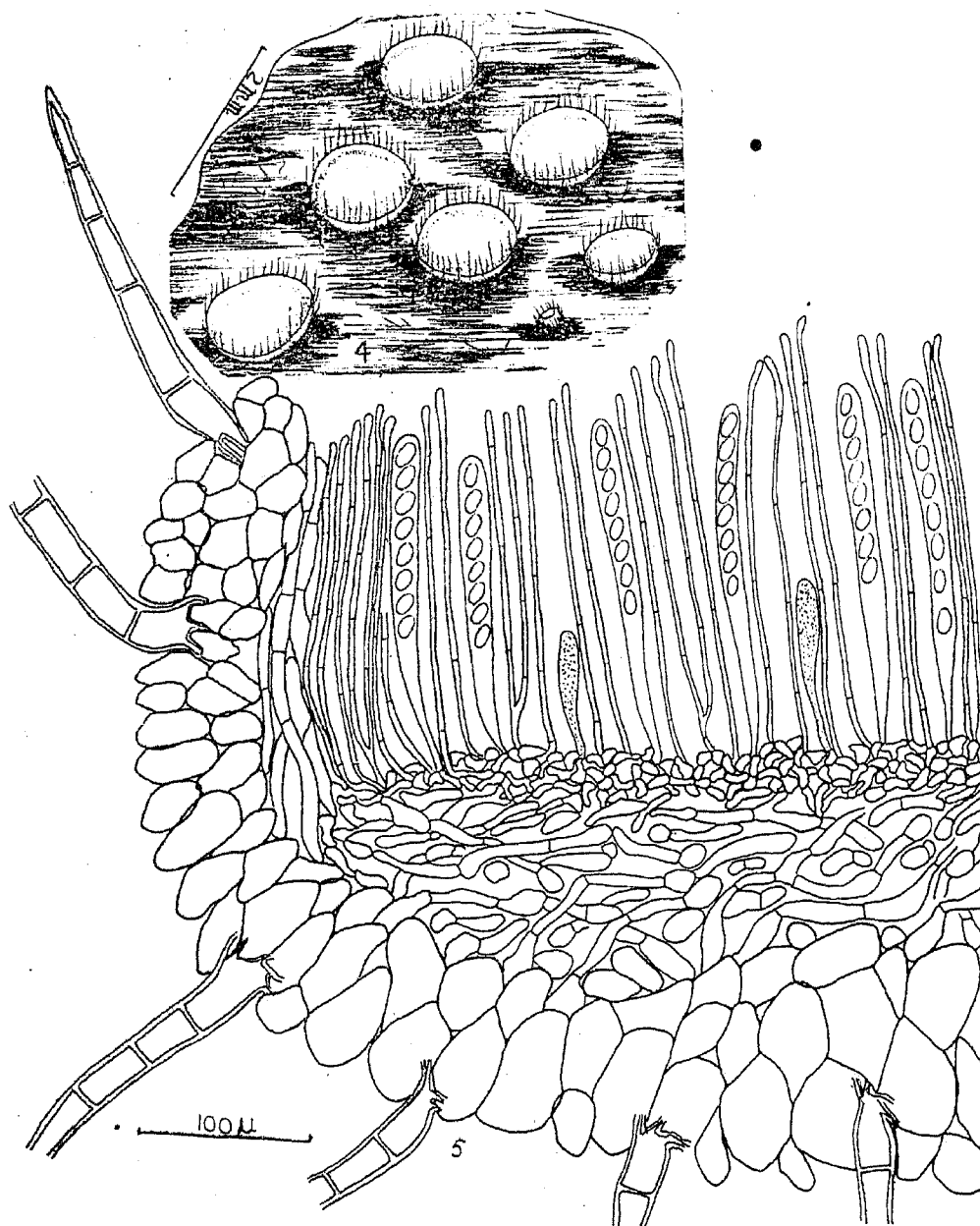
In completely reticulate ascospores, it is unique among the known species of *Boudiera* Cooke. The ascospore sculpturing in *B. areolata* Cooke and Phill. and *B. echinulata* Seaver (Seaver 1928) is reticulate-echinulate, often chiefly echinulate, but never truly reticulate. The ascospore size, however, is much bigger in these species than that of *B. parvispora*.

100. *Cheilymenia simlensis* Thind and Waraitch, sp. nov. (figures 4, 5).

Apothecia usque 2 mm diam., aurantiaca, sessilia, tenui-cupulata vel disciformia, extrinsecus conspicue hirsuta; pili usque $1580 \times 48\mu$, brunnei, superficiales et profunde radicante, setacei, crassi-tunicati (muris 5μ crassis), anguste septati. *Asci* $175-185 \times 10-12\mu$, octospori, jodi ope non caerulescentes. *Ascosporae* $13.5-18.5 \times 6.5-8.5\mu$, subhyalinae, glabrae, eguttulatae. *Paraphyses* infra 3μ , ad apices usque 6.5μ latae, intense vel rubro-aurantiaca. Excipulum ectale e textura angulari; excipulum medullosum e textura intricata compositum, hyphis saepe cellulas vesiculares efformantibus.

Hab. in fimo in sylvis: India (Jakkoo Hill, Simla, Himachal Pradesh), August 21, 1961, n. 2448 Typus (PAN).

Apothecia up to 2 mm in diameter (mostly up to 1 mm), scattered, sessile, globose at first and becoming shallow cupulate to discoid at maturity, fleshy; external surface orange, profusely hairy; hairs rooting, up to $1580 \times 48\mu$, brown to dark brown, denser and longer along the margin and forming a



Figures 4, 5. *Cheilymenia simlensis*. FIG. 4. Apothecia: FIG. 5. V.S. of apothecium showing 2 zoned excipulum.

fringe, superficial as well as originating from deeper layers of the ectal excipulum, rigid and bristly, thick-walled (wall up to 5μ thick), septate, septa at short intervals and up to 14 in number, simple, broader near the rooting base, tapering above into acute to sharp pointed apices; margin entire, fringed with hairs; hymenium deep orange to reddish orange. *Asci* 175–185 \times

10–12 μ , 8-spored, cylindrical, J—. *Ascospores* 13.5–18.5 \times 6.5–8.5 μ , uniseriate, subhyaline, ellipsoid, smooth, eguttulate. *Paraphyses* up to 3 μ wide below and 6.5 μ at the top, slender, straight, septate, simple or branched near the base, filled with deep orange to reddish granules which turn greenish blue with Melzer's reagent, projecting up to 20 μ beyond the ascus tips.

Anatomy: Ectal excipulum light orange, up to 144 μ thick, *textura angularis*, cells up to 80 \times 48 μ , decreasing in size towards margin, usually radiating out, slightly thick-walled, giving rise to hairs (as described above); medullary excipulum lighter concolorous, up to 180 μ thick, *textura intricata*, hyphae up to 10 μ wide, thin-walled, often swollen at places into vesicular cells up to 25 \times 15 μ ; hypothecium orange, up to 48 μ thick, densely *textura intricata* to *textura subangularis*, hyphae up to 7 μ wide.

Collected on buffalo dung in mixed forest: India (Jakkoo Hill, Simla, Himachal Pradesh), August 21, 1961, n. 2448 Type (PAN). A portion of the type also deposited in L.

From the closely allied species, *Cheilymenia coprinaria* (Cooke) Boud. (Denison 1964), it differs by its smaller apothecia, much bigger hairs and *textura intricata* type of medullary excipulum.

101. *Cheilymenia chandigarhii* Thind and Waraitch, sp. nov.

Apothecia usque 3 mm diam., gregaria, rubra, sessilia, tenuicupulata vel plana, extrinsecus parce hirsuta; pili usque 455 \times 16 μ , subhyalini, superficiales et non radicanes, setacei, parietibus 1 μ crassis tunicati. *Asci* 230–280 \times 13–16 μ , octospori, jodi ope non caerulescentes. *Ascosporae* 16–22.5 (–24) \times 10–13 μ , glabrae, subhyalinae, eguttulatae. *Paraphyses* infra 3.5 μ , ad apices 5 μ latae, rufulae. Excipulum totum e *textura angulari* compositum, sed cellulis exterioribus majoribus et crassiore tunicatis.

Hab. in fimo: India (Lahora Village, Chandigarh), Feb. 10, 1964, n. 2515 Typus (PAN).

Apothecia up to 3 mm in diameter (usually not exceeding 1 mm), densely gregarious to crowded and forming congested masses up to 3 cm long, sessile or reduced below into a short stem-like base which is usually buried in the substratum, subglobose at first, expanding and becoming shallow cupulate to plane later, regular, soft fleshy; external surface red, sparsely hairy; hairs up to 455 \times 16 μ , subhyaline, originating superficially, straight, slightly

thick-walled (wall up to $1\ \mu$ thick), septate, broader near the simple base, tapering upwards into acute apices; margin entire to wavy, fringed with hairs; hymenium concolorous, smooth. *Asci* $230\text{--}280 \times 13\text{--}16\ \mu$, 8-spored, cylindrical, J—. *Ascospores* $16\text{--}22.5\text{--}24 \times 10\text{--}13\ \mu$, uniseriate, ellipsoid, smooth, subhyaline, eguttulate. *Paraphyses* up to $3.5\ \mu$ wide below and $5\ \mu$ at the top, slender, straight, septate, simple, reddish due to coloured contents which turn dark greenish blue with Melzer's reagent, projecting up to $15\ \mu$ beyond the ascial tips.

Anatomy : Ectal excipulum reddish brown, up to $180\ \mu$ thick, textura angularis, cells up to $90 \times 68\ \mu$, becoming smaller towards margin, usually radially arranged, slightly thick-walled, outer cells giving rise to hairs (as described above); medullary excipulum reddish, up to $450\ \mu$ thick, textura angularis, differentiated from ectal excipulum by smaller (up to $68 \times 50\ \mu$) and thin-walled cells, somewhat hyphal towards margin, with intermixed hyphae up to $25\ \mu$ wide, thin-walled, septate, branched; hypothecium red, up to $80\ \mu$ thick, densely textura angularis, cells up to $16 \times 14\ \mu$, thin-walled.

Collected on dung in an exposed place: India (Lahora Village, Chandigarh), February 10, 1964, n. 2515 Type (PAN). A portion of the type also deposited at C.

Due to similar excipulum and hairs it is close to *C. theleboloides* (Alb. and Schw. ex Fr.) Boud. [Denison, 1964; Thind and Waraitch, 1966, reported it as *Humaria coprinaria* (Cooke) Kanouse] but differs from it in red and somewhat smaller apothecia, longer asci and bigger ascospores.

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