Mycoarctium, a new coprophilous genus in the Thelebolaceae[1]

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Mycoarctium ciliatum is described and illustrated as a new species and a new genus found on deer dung from Colorado, U.S.A. The small, very light brown apothecia have numerous, rigid, septate hairs. The asci are eight-spored, clavate, without an operculum, and evanescent. The ascospores have reticulate ridges and are not forcibly discharged.

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Les auteurs décrivent et illustrent ***Mycoarctium ciliatum***, une nouvelle espèce et un nouveau genre récolté sur des excréments de cerf au Colorado, U.S.A. Les petites apothèces d'un brun très pâle ont de nombreux poils, rigides et munis de septations. Les asques ont huit spores; ils sont claviformes, sans opercule, et sont éphémères. Les ascospores ont des crêtes réticulées et ne sont pas émises de façon explosive. [Traduit par le journal]

While studying coprophilous fungi growing on the deer dung collected in Colorado and maintained in a moist chamber in Toronto, an interesting discomycete was observed. It was associated with *Trichodelitschia bisporula* (Cr. & Cr.) Munk. Several apothecia developed on two small pebbles included with the dung pellets in the moist chamber.

Mycoarctium Jain & Cain, gen. nov.

Apothecia superficialis, discoidea, dilute brunnea, ciliata. Excipulum e cellulis angularibus (textura angulari), non amyloideis, cyanophilis, dilute brunnea compositum. Cellulae marginatae radiatis ordinibus dispositae. Pili recti, rigidi, attenuati, non ramosi, septati, cyanophyli, parietibus crassis praediti. Asci cylindraceo clavati, non amyloidei, primum parietibus crassis praediti, deinde evanescentes, sine apparatu apicale, sine operculum. Paraphyses hyalinae, septatae, evanescentes. Ascosporae ellipsoideae, dilute brunneae, reticulatae cyanophilae, non amyloideae, non guttulatae, aliquando "deBary bubble" praeditae.

TYPE SPECIES: *Mycoarctium ciliatum* Jain & Cain

ETYMOLOGY: Greek, *mykes* = fungus, and *arktos* = bear, referring to the resemblance of the apothecial hairs to the hooked involucral bracts of *Arctium*.

Apothecia superficial, globose at first, becoming discoid, small, very lightly pigmented yellowish brown throughout, hairy. *Hymenium* whitish, becoming convex, exposed. Cells of excipulum angular, arranged in radiating rows toward periphery, thin-walled, non-amyloid, cyanophilous, faintly brownish. *Hairs* straight, rigid, tapering, thick-walled, unbranched, septate, cyanophilous, originating from outermost cells of excipulum. *Asci* cylindric-clavate, without operculum or apical differentiation, non-amyloid, thick-walled when young, becoming thin and evanescent. *Paraphyses* hyaline, septate, evanescent. *Ascospores* ellipsoid, faintly yellowish brown, without oil globule, with or without de Bary bubble, ornamented with ridges to form a reticulum, cyanophilous, non-amyloid.

Mycoarctium ciliatum Jain & Cain, sp. nov.

Apothecia primum globosa, achromatica, deinde discoidea 200–400 μ in diametro, dilute brunnea superficialis, solitaria vel aggregata, ciliata. Hymenium planatum vel convexum, albidum. Excipulum e cellulis angularibus (textura angulari), 4–8 μ in diametro, non-amyloideis, cyanophilis, dilute brunnea, parietibus tenuis praeditis compositum. Cellulae marginatae radiatis ordinibus dispositae. Pili (200–)300–500 μ longi, super basibus 6–11 μ crassi, in bassibus 4–6 μ crassi, apices versus attenuatis, recti, rigidi, non ramosi, numerosi, 0- ad 5-septati, cyanophili, parietibus crassis praediti, ad apices uncinati vel circinati, dilute brunnei. Asci 80–110 ×

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20–30 μ, octospori, ad apicem late rotundati, sine operculum, sine apparatu apicale, cylindraceo-clavati, ad basem in stipitem attenuati, non amyloidei, primum parietibus crassis praediti, deinde evanescentes. Paraphyses hyalinae, septatae, evanescentes. Ascosporae (12–)13–14 (–15) × 8–10(–11) μ, ellipsoideae, aliquantum, inaequilaterales, superne irregulariter biseriatae, inferne uniseriatae, dilute brunneae, non guttulatae, aliquando "de Bary bubble" praeditae, reticulatae, cyanophilous, non amyloideis.

HOLOTYPE: U.S.A.: Colorado: Boulder Co.: Nederland, on deer dung, 27 Aug. 1962, *Cain*, TRTC 46385. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *cilium* = eyelash, referring to the hairy apothecia.

Apothecia at first globose and colorless, becoming discoid, 200–400 μ diam (excluding hairs), very light yellowish brown, sessile, superficial, solitary to gregarious, hairy. *Hymenium* flat to convex, whitish. *Excipulum* a *textura angularis*, except cells towards periphery arranged in radiating, linear rows. *Excipular cells* 4–8 μ in diam, very light brown, thin-walled. *Hairs* (200–)300–500 μ long, 6–11 μ wide at broadest part near base, 4–6 μ wide at base, tapering gradually to an acute apex, straight, rigid, unbranched, numerous, originating from the outermost cells of excipulum, with up to five septa, wall thickened to 2–3 μ, cyanophilous, uncinate or with a loose spiral coil of one to two turns at apex, slightly brownish. *Asci* 80–110 × 20–30 μ, eight-spored, broadly rounded at apex, without operculum or apical differentiation, cylindric-clavate, tapering below into a fairly long stipe, non-amyloid, thick-walled when young but eventually becoming thin and evanescent. *Paraphyses* hyaline, branched at base, septate, evanescent. *Ascospores* (12–)13–14(–15) × 8–10(–11) μ, ellipsoid or sometimes slightly flattened on one side, irregularly biseriate above, uniseriate below, faintly yellowish brown, without oil globule, with or without de Bary bubble, ornamented with slender low ridges which form an almost continuous reticulum, cyanophilous, non-amyloid, not forcibly discharged. *Colony* on basal medium plus 10 g of maltose per liter reaching a diameter of 8 cm in 2 weeks at 18°C, thin, loose, felty, azonate, colorless at first, becoming very light brown after 2 weeks when ascocarps develop. *Aerial hyphae* rather scanty, hyaline, septate, with mostly binucleate cells. *Ascogonia* rather broad, twisted or convoluted, multicellular, consisting of one-celled trichogyne, enlarged multinucleate penultimate cell and four to six basal cells from which the excipulum and paraphyses develop. No spermatia or conidia produced on any media used.

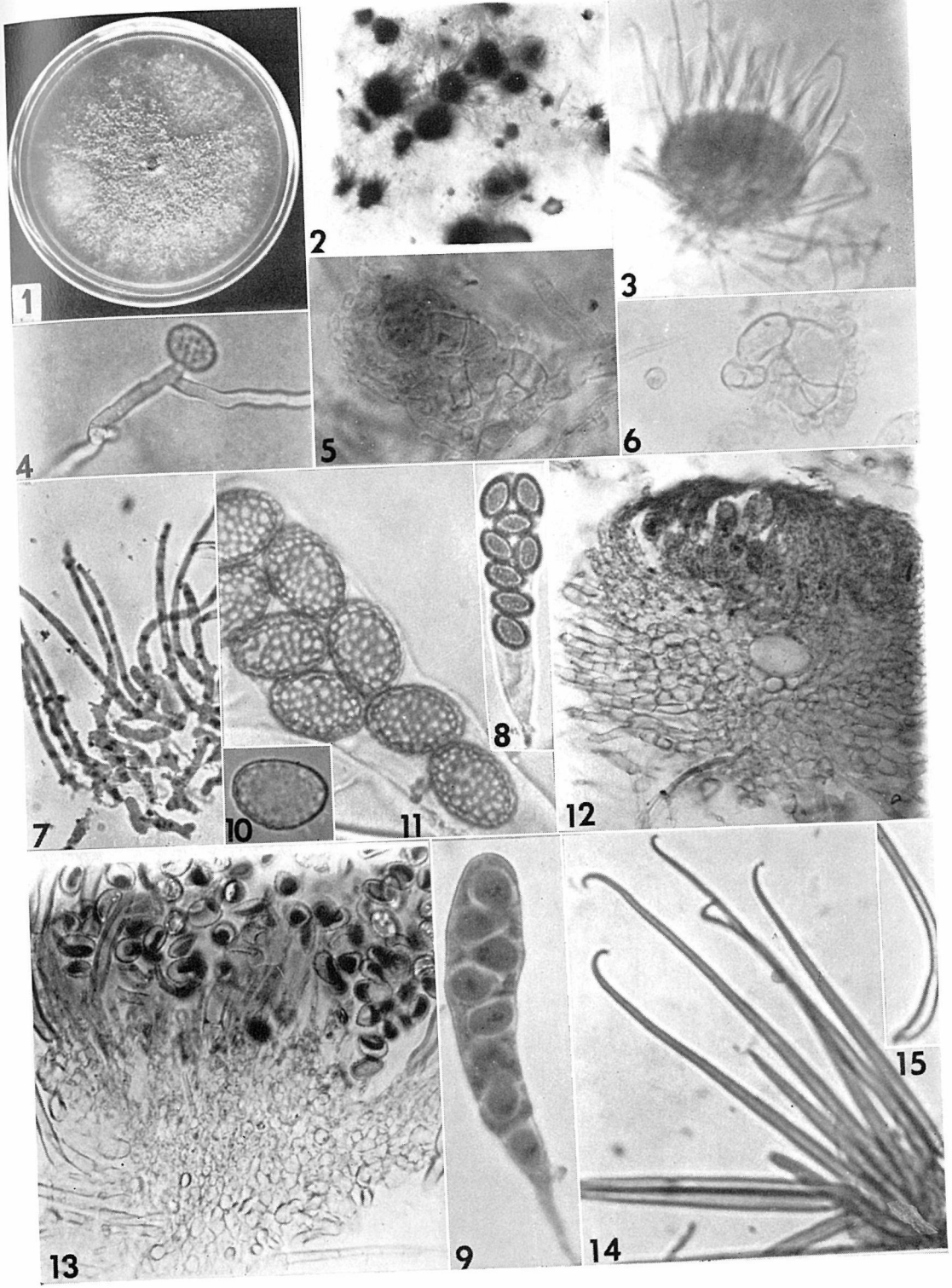
HABITAT: On deer dung.

SPECIMENS EXAMINED: U.S.A. California: San Mateo Co., Crystal Springs Reservoir, culture from dung of dusky-footed wood rat, 30 Dec. 1969, *Malloch*, TRTC 46151. Colorado: Boulder Co., Nederland, on deer dung and small pebbles, 27 Aug. 1962, *Cain*, TRTC 46385, grown in laboratory, Toronto, and isolated in pure culture (TYPE).

Fresh ascospores germinate readily. When grown on basal medium of Westergaard and Mitchell (1947) supplemented with 10 g of maltose per liter (technical grade, British Drug House), and incubated at 18°C in continuous darkness the colony occupies the entire 9-cm petri dish and develops mature apothecia in 2 weeks. The ascogonia are produced in small groups on the aerial hyphae and several of them contribute to the formation of a single apothecium whose development is angiocarpic. On this medium many of the ascocarps develop abnormally and are either partially or completely submerged in the agar.

Mycoarctium, *Trichobolus*, and *Lasiobolus* all have hairs that are thick-walled, straight, and pointed. In *Lasiobolus* the hairs are hyaline and non-septate, the asci have an operculum, the ascospores are hyaline and smooth. In addition, the structure of the excipulum is different.

FIGS. 1–15. *Mycoarctium ciliatum* Jain & Cain, sp. nov. Fig. 1. A 2-week-old colony, × 0.5. Fig. 2. Part of colony with apothecia, × 10. Fig. 3. An enlarged apothecium, × 80. Fig. 4. A germinating ascospore, × 530. Fig. 5. An ascogonium showing an enlarged multinucleate cell and basal cells, × 1100. Fig. 6. An ascogonium showing trichogyne, enlarged cell, and basal cells, × 1000. Fig. 7. Paraphyses, × 1100. Fig. 8. Ascus with ascospores, × 470. Fig. 9. Young ascus with developing ascospores, × 600. Fig. 10. Ascospore, × 1100. Fig. 11. Ascus with ascospores, × 1100. Fig. 12. Longitudinal section of a young apothecium showing hymenium and excipulum, × 550. Fig. 13. Longitudinal section of a mature apothecium showing the evanescent nature of asci with ascospores accumulated in the hymenium, × 400. Fig. 14. Hairs, × 200. Fig. 15. Base of a hair, × 300.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Mycoarctium resembles *Trichobolus* in having asci which lack an operculum. The former differs in having more numerous, small, eight-spored asci that are evanescent at maturity and ascospores that have reticulate ridges. In *Trichobolus* the numerous ascospores are forcibly discharged through an irregular opening in the apex. These three genera all belong in the family Thelebolaceae (Brumm.) Eckblad (1968).

ECKBLAD, F. E. 1968. The genera of operculate Discomycetes. Nytt Mag. Bot. **15**: 1–191.

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