Mycoarctium, a new coprophilous genus in the Thelebolaceae

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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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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, cyanophilii, parietibus crassis praediti. Asci cylindraceo clavati, non amyloidei, parietibus crassis praediti, deinde evanescentes, sine apparatu apicali, sine operculum. 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.

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20–30 μ, octospori, ad apicem late rotundati, sine operculum, sine apparatu apicale, cylin-
dracoe-clavati, ad basem in stipitem attenuati, non amyloidei, primum parietibus crassis praedi-
di, deinde evanescentes. Paraphyses hyalinae, septatae, evanescentes. Ascospores (12–)13–14
(–15) × 8–10–(11) μ, ellipsodeae, aliquantum, inaequilaterales, superne irregulariter biseriatae,
inferne uniseriatae, dilute brunneae, non guttu-
latae, 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, Uni-
versity 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, super-
ficial, solitary to gregarious, hairy. Hymenium
flat to convex, whitish. Excipulum a textura
angularis, except cells towards periphery ar-
ranged 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 evanes-
cent. 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, with-
out 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 spermata 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 malt-
ose 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 apothe-
cium whose development is angiocarpic. On this
medium many of the ascocarps develop abnor-
mally and are either partially or completely sub-
merged 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.
*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).
