

Perithecia dark olive brown to almost black, opaque, globose to subglobose, $180\text{--}245 \times 175\text{--}245 \mu$, base sometimes flattened, ostiolate, firmly attached to the basal felt with brown rhizoids. Terminal hairs forming a dense head, dark olive brown, below straight or nearly so, $3.0\text{--}3.5 \mu$ wide at base, obscurely septate, coarsely roughened throughout with minute, close, regular projections, becoming coiled in the middle into an irregular spiral, near the tip forming reversed loops with connecting arches, terminating in a stout, circinate, blunt tip, up to $6.5\text{--}7.5 \mu$ wide at broadest part of the terminal arch, at maturity producing along the middle convolutions one or more lateral branches, which are mostly coiled up to 5, close, regular coils, ending in a rounded or sometimes contorted tip, light brown to brown, roughened, septate, $3.0\text{--}4.5 \mu$ wide, rounded at their point of attachment. Lateral hairs often covering the perithecium up to the extent of forming part of the terminal hairs, dark olive brown, straight or slightly flexed, long, slender, unbranched except the intermingled ones, distinctly and regularly septate, $4.5\text{--}5.0(5.5) \mu$ wide at base, minutely roughened to smooth, tapering gradually to collapsed, pale-colored or hyaline tip. Asci cylindrical, eight-spored, $65\text{--}75 \times 7.5\text{--}8.0 \mu$ (spore-bearing part $45\text{--}50 \mu$ long), very evanescent. Ascospores monoseriate, olive brown, broadly lemon-shaped or broadly ovoid to nearly subglobose, $9.0\text{--}10.5 \times 8.0\text{--}9.0 \mu$, mostly $9.5\text{--}10.0 \mu$ long, apiculate at one or both ends, frequently rounded at one end, compressed in side view.

Cultures on oatmeal agar with addition of wheat germ growing rapidly, consisting of a close felt with surface of a thin growth of aerial hyphae appearing floccose, with perithecia developing slowly in a loose mycelial felt or scattered irregularly in a network of aerial hyphae, olive gray to dark olive green, reverse olive brown to black, with the surrounding agar pale yellowish olive. Cultures on modified Leonian's agar as on oatmeal but showing hyaline to pale yellow shades in compact, aerial hyphae. Cultures on pabulum agar growing rather rapidly, perithecia very limited in number.

Isolated from soil in forest of *Thuja occidentalis*, near Guelph, Wellington Co., Ontario, 1964, G. C. Bhatt (TRTC 43892).

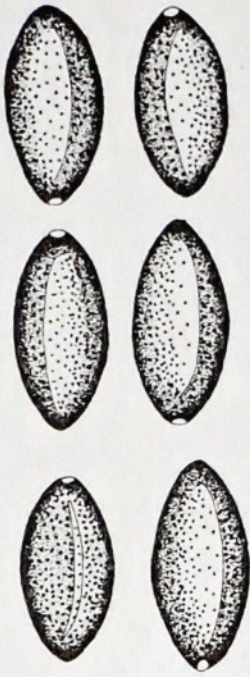
C. anahelicinum is believed to be closely related to *C. crispatoideum* Sergeeva (1956) and *C. crispatum* Fuckel, which are characterized by successively reversed, close loops with connecting short arches in the slender, minutely roughened terminal hairs. However, the presence of many regularly coiled branches of the terminal hairs separates the species readily from others in this group with terminal hairs contorted in reversed loops. This culture shows a marked tendency to become sterile with continued maintenance on agar slants.

Chaetomium ancistrocladum Udagawa and Cain (vgl. murorum, sp. nov. (Figs. 9-11) v. Arx et al., 5.4112)

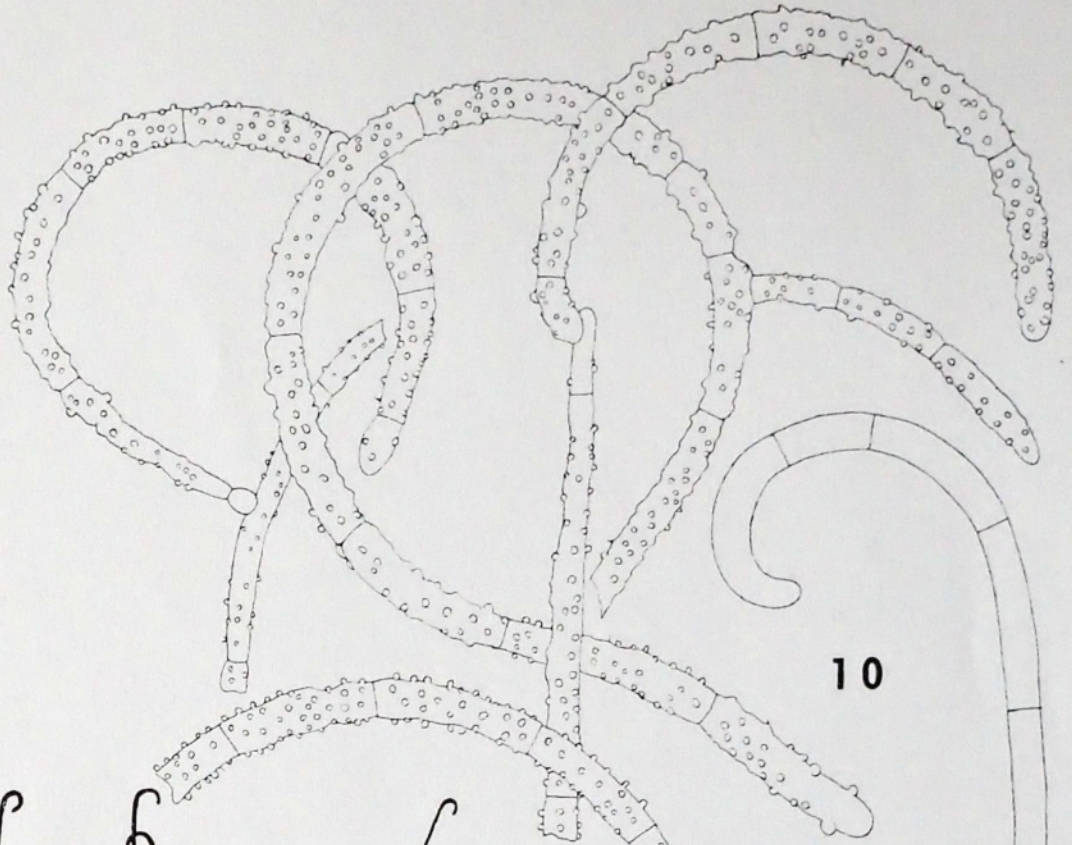
Peritheciis atro-brunneis vel nigris, ovatis, $260\text{--}350(370) \times 220\text{--}330 \mu$, ostiolatis, ad substratum cum rhizoideis pallide luteo-brunneis leviter affixis. Pilis terminalibus generium duorum: (a) summe longis, gracilibus, venustis, non late erectis, rectis, perbrunneis, latis $7.0\text{--}7.5(8.0) \mu$, asperis, distincte septatis, parietibus crassis praeditis, apice circinatis; (b) brevis, atro-brunneis, asperis, septatis, undulatis, arcuatis, ramosis, basi latis $5.0\text{--}6.5 \mu$, apice latis $6.5\text{--}7.5 \mu$. Pilis lateralibus longis rectis. Asci clavatis, octosporis, evanescentibus. Ascosporis biseriatis, pallido-brunneis, ellipsoideis, utrinque subapiculatis vel leniter umbonatis, $15.0\text{--}17.5 \times 8.5\text{--}10.0(11.5) \mu$, compressis. Foramine germinali ad apicem ascosporae.

TYPUS: ex fimo cultivatus, Massachusetts. In Herbario TRTC (40386).

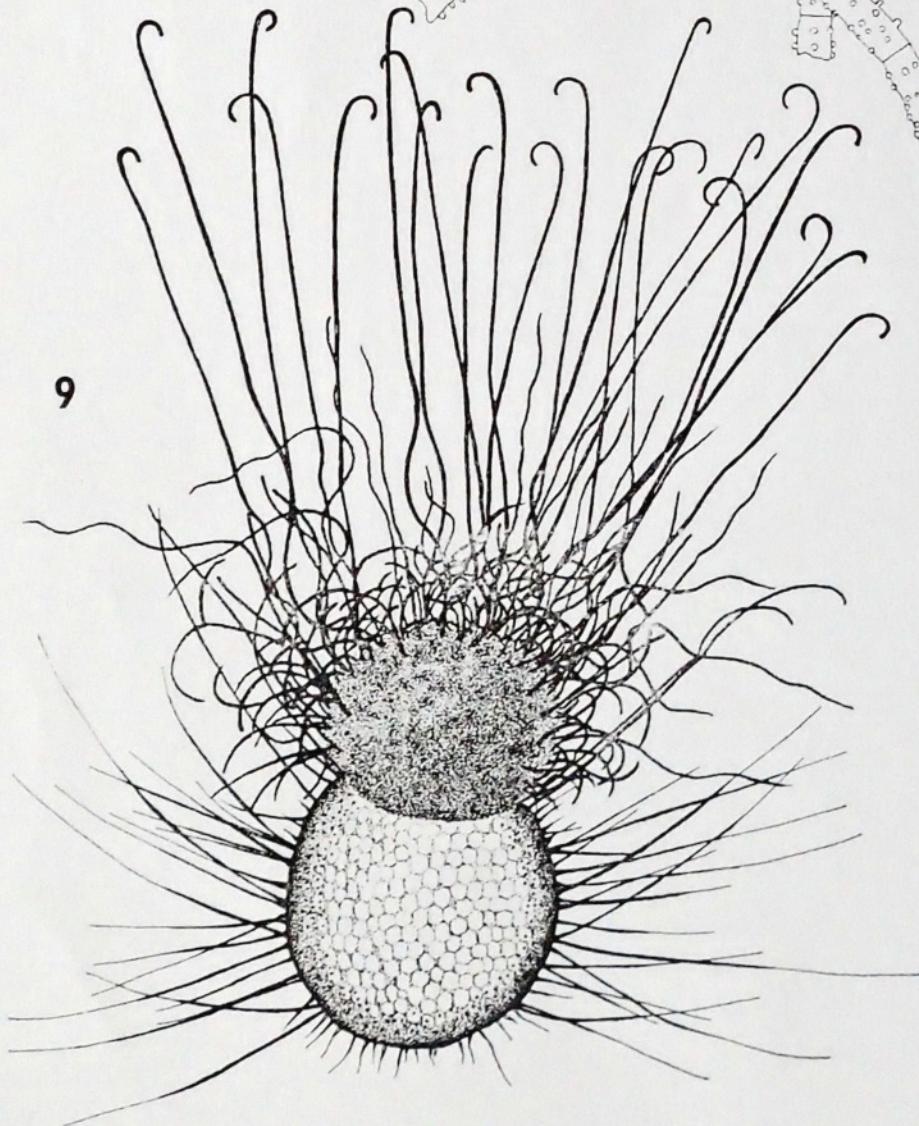
Perithecia dark brown to black, opaque, ovate, base rounded or sometimes slightly pointed, $260\text{--}350(370) \times 220\text{--}330 \mu$, ostiolate, lightly affixed to the substratum with undifferentiated, pale yellowish brown rhizoids. Terminal hairs of two types: (a) very long, slender, graceful, tending to closely parallel, not widely spreading, dark brown excluding hyaline or pale-colored base, the basal area largely undulate, the long middle part straight or nearly so, $7.0\text{--}7.5(8.0) \mu$ wide, irregularly encrusted with yellowish angular projections, terminating in an open, circinate, blunt, less roughened tip, regularly and distinctly septate, thick-walled; (b) short hairs originating around the ostiole, entirely concealed by the spore mass, dark brown, thick-walled, coarsely roughened, septate, at base $5.0\text{--}6.5 \mu$ wide, at tip $6.5\text{--}7.5 \mu$ wide,



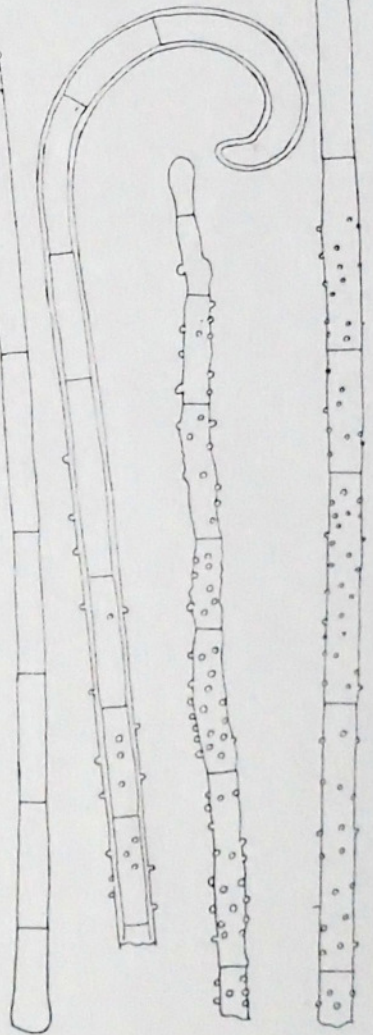
11



10



9



straight below, becoming soon strongly looped or distorted, with rounded ends, secondary coiled tips often branching from primary coiled tips, occasionally appearing longer, straight, or nearly straight hairs resembling hairs of type (a) but never developing the circinate tip. Lateral hairs long, straight. Asci clavate, eight-spored, very evanescent. Ascospores biseriate, light brown, ellipsoid, subapiculate or slightly umbonate at both ends, $15.0\text{--}17.5 \times 8.5\text{--}10.0$ (11.5) μ , with an apical germinal pore, compressed in side view.

Isolated in pure culture from dung of carnivore, Conway, Massachusetts, U.S.A., collected August 24, 1963, R. F. Cain (TRTC 40386, type). Isolated from hen dung, Tamsel, Germany, collected March 20, 1935, P. Vogel, developing in laboratory, Toronto, 1935, R. F. Cain (TRTC 43893). Isolated from dung of carnivore, Costello Lake, Algonquin Park, Ontario, collected September 6, 1939, R. F. Cain (TRTC 43894).

On the basis of developing long undulate to straight terminal hairs with circinate tips, *C. ancistrocladum* is assignable to the *C. murorum* and its allied group, such as *C. alba-arenulum* Ames (1961 [1963]), *C. carinthiacum* Sörgel (1961), *C. circinatum* Chivers, *C. elongatum* N. Czerepanova (1962, non. *C. elongatum* Rama Rao et Ram Reddy), *C. murorum* Corda, and *C. piluliferum* Daniels (1961). With the possible exception of *C. circinatum* or some transitional strains between *C. circinatum* and *C. murorum* such as TRTC 38959, Herb. R. F. Cain 6748, and Ex Herb. A. H. Chivers No. 13-5, no taxon hitherto recognized in this group has distinctly septate, roughened, thick-walled terminal hairs and large, light brown, ellipsoid ascospores. It differs from these closer members principally in the character of its rather straight terminal hairs, which are intermingled with shorter, noticeably branched, looped hairs. Although the presence of two types of terminal hairs is somewhat suggestive of *C. carinthiacum*, this species may be distinguished by the detailed characters of its terminal hairs and ascospores, as presented above.

Chaetomium erraticum Ames, in A monograph of the Chaetomiaceae p. 23, 1961 [1963].
(Figs. 12-15)
=gracile
(v. Arx et coll.)

Perithecia yellowish brown, semitranslucent, superficial, globose to ovoid, mostly $95\text{--}150 \times 85\text{--}140(150)$ μ , lightly attached to the substratum by delicate rhizoids, with wide ostiole, at maturity producing an irregular spore mass which almost entirely conceals the terminal hairs. Terminal hairs brown, strongly arcuate from the base or the middle portion, usually incurved, sometimes recurved or slightly wavy, forming compact and ragged heads, $70\text{--}120(140) \times 3.5\text{--}4.0$ μ , at base enlarged up to $5.0\text{--}6.5$ μ in diam, unbranched, irregularly and remotely septate, thick-walled, minutely roughened throughout, ending in a blunt, rounded tip. Lateral hairs limited in number, short, light-colored, straight to slightly incurved, otherwise similar to the terminal hairs. Asci clavate, eight-spored, $32.5\text{--}38 \times 11.5\text{--}15.0$ μ (spore-bearing parts $19\text{--}25$ μ), with narrow, short stipe, very evanescent. Ascospores biseriate, olive brown, ellipsoid, $9.5\text{--}11.5 \times 6.0\text{--}7.0$ μ , faintly apiculate at both ends, with an apical germ pore, depressed in side view.

Cultures on oatmeal agar with wheat germ powder growing rapidly, thin, with vegetative mycelium submerged, cottony, producing small, scattered perithecia in an irregular layer, black, reverse uncolored. Cultures on malt agar growing rapidly, producing abundant perithecia in a layer near to the agar surface or loosely suspended in a network of aerial hyphae, black, reverse pale yellowish cream in color.

Isolated from Indian soil in laboratory, Tokyo, March 1962, S. Udagawa.

C. erraticum is very similar to *C. arcuatum* Rai et Tewari (1962) in having very small perithecia with a ragged head, short unbranched, strongly arcuated to undulate terminal hairs, and narrow ellipsoid, subapiculate ascospores. It differs from this species only in the smaller dimensions of perithecia, the width of terminal hairs and asci, and the length of ascospores. The relation of *C. erraticum* and *C. arcuatum* will have to be reevaluated when typical strains