



1, Apothecia from DAOM 145996 (ca \times 0.8); 2, ascospores in ascus from 145996 (ca \times 1200); 3, 4, paraphyses with wavy, tapering apices from 145996 (ca \times 1200); 5, inflated cells of ectal excipulum from 87526 (ca \times 1000); 6, cylindrical cells of medullary excipulum from 87526 (ca \times 1000).

Caloscypha fulgens (Pers.) Boudier, Hist. Class. Discom. Eur. 54. 1907.

\equiv *Peziza fulgens* Pers., Myc. Eur. 1: 241. 1822.

APOTHECIA when fresh to 4 cm in diameter, very brittle, scattered or in small clusters of 3-15, essentially sessile, cup-shaped with the mouth constricted, sometimes split like *Otidea*. Exterior pale yellow or brownish with a distinct green tinge, finely pruinose, smooth. Flesh pale yellow, to 1 mm thick. Hymenium smooth, bright orange-yellow with a mottling of blue-green, especially where bruised.

ECTAL EXCIPULUM about 0.1 mm thick; hyphae of swollen cells, barrel-shaped to subglobose, up to 20(-30) μ in diameter, generally resinously coated. **MEDULLARY EXCIPULUM** of the *textura porrecta* to *intricata* types; hyphae hyaline, thin-walled, occasionally branched and septate, 4-10(-15) μ

in diameter. PARAPHYSES cylindrical to wavy, some tapering in the apical 20μ , $2.5-3.5\mu$ in diameter, generally septate and branched $40-60\mu$ below apices; contents homogeneous (water or KOH preparations). ASCI cylindrical, generally with a rather truncated apex, not bluing in Melzer's reagent, 8-spored, $110-135 \times 8-9\mu$. ASCOSPORES at first 2-seriate but when mature 1-seriate, globose or subglobose, $(5.5-6-6.5(-7)\mu$; the wall smooth, slightly thickened (to 0.5μ), hyaline, pale yellow in Melzer's.

SUBSTRATE: on soil among mosses or sometimes attached to buried rotten wood, apparently only under conifers.

DISTRIBUTION: New Brunswick, Quebec, Ontario, Manitoba and British Columbia.

COLLECTIONS (selected): N.B., Fundy National Park, Wolf R. Trail, 45°N , 65°W , 3.VI.1967, DAOM 136524 (D. Malloch). Que., N of Lachute, 45°N , 74°W , 4.VI.1956, 54252 (H.S. Cook); Cantley, 45°N , 75°W , 25.V.1974, 145996 (J. Ginns, 2813). Ont., Petawawa, 45°N , 77°W , 9.V.1938, 5240 (J.W. Groves); Richmond Hill, 43°N , 79°W , 2.V.1936, 24872 (R.F. Cain & D.H. Linder); L. Timagami, 47°N , 80°W , 2.VI.1932, 86984 (J.W.G. & S.M. Pady, TRTC 4357). Man., Victoria Beach, 50°N , 96°W , 25.V.1931, 1120 (G.R. Bisby et al). B.C., Falkland, 50°N , 119°W , 6.VI.1966, 116816 (W.G. Ziller, DAVFP-16960); Vancouver Island, Thetis L., 48°N , 123°W , 25.IV.1964, 107205 (M.C. Melburn); V.I., MacMillan Park, 49°N , 124°W , 24.IV.1961, 87526 (R.J. Bandoni, BC-1786).

NOTES: Collections available in DAOM indicate that apothecia appear as early as mid-April, particularly in the vicinity of Victoria, B.C., as late as June 8 but generally in May from the other provinces. The constant association of *C. fulgens* with coniferous species, and our lack of any reference to its occurrence in the boreal forest is, no doubt, due to the few spring collections available from that area. It is reported to be common in the Rocky Mountains but no specimens are known from the Canadian Rockies. Apothecia which split down one side are reminiscent of the genus *Otidea*. Species of *Otidea* are distinctive in having ellipsoid spores, and paraphyses which are strongly curved at the apex. *C. fulgens* can be easily separated from grossly similar fungi because of its bright orange-yellow hymenium and globose, or nearly so, spores.

Eckblad's description of *C. fulgens* (Nytt. Mag. Bot. 15: 44-45. 1968) from Norway differs in some respects from features of the Canadian collections studied. He described the outermost cells of the ectal excipulum as thick-walled, whereas I found the cell walls to have negligible thickening (less than 1μ) and to be, in most instances, coated with a resinous substance. In the Norwegian collections the asci are $140-170 \times 22-29\mu$, often containing fewer than eight spores. The Canadian specimens have the asci shorter and significantly narrower and all asci observed were eight-spored. Seaver (N. Amer. Cup-fungi (Operculates), 1942, p. 50) reported the asci in United States collections to be up to 100μ long and $10-12\mu$ in diameter. The yellow granules within the paraphyses reported by Seaver (l.c.) and Eckblad (l.c.) were not seen.

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