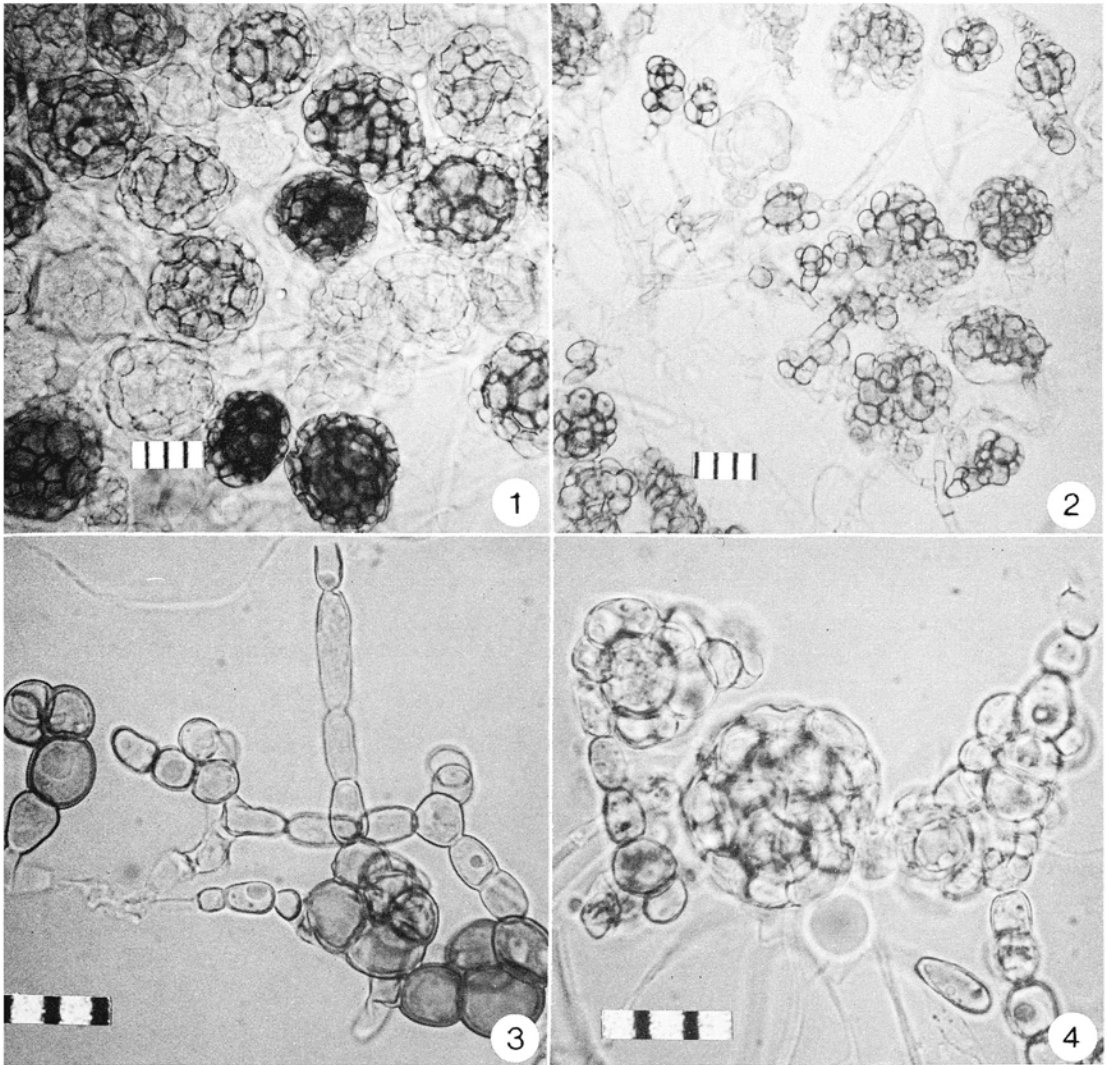


PAPULASPORA SEPEDONIOIDES



DAOM 138183. 1, On *Helianthus tuberosus* from cold storage in vermiculite; 2, on malt agar at 20°C for 3 weeks; 3, early stages of development of papulaspores; 4, maturing and mature papulaspores. Scale: each unit = 10 μ .

Papulaspora sepedonioides Preuss, in Sturm, Deutschlands Flora III, 6(30): 89-90. 1851.

= *P. dodgei* Connors ex Linder, Mycologia 34: 399. 1942.

= (*P. gladioli* H.H. Hotson, Mycologia 34: 57. 1942, *nom. nud.* intended for *P. gladioli* (W.G. Smith) Dodge & Laskaris, Bull. Torrey Bot. Club 68: 292. 1941, *nom. provis., nec P. gladioli* (Req.) Dodge & Laskaris, *ibid.* p. 293 (*q.e. Urocystis gladioli* (Req.) de-Toni in Sacc., Syll. Fung. 7: 518. 1888)).

On natural substrate, MYCELIUM abundant or sparse, generally a white mat, superficial; HYPHAE as in culture (see below). PAPULASPORES superficial, scattered individually or in clumps, at first colorless, eventually red or red-brown, at maturity mainly 40-60(-90) μ diam.; constructed of a core of cells with a cellular sheath. CENTRAL CELLS — 1-10 or more per papulaspore — each cell globoid or somewhat angular through mutual pressure, 20-30 μ diam., with wall more or less thickened and deeply pigmented. SHEATH composed of branching hyphae enclosing the core cells, usually a single layer of cells, each cell more or less globoid (10-15 μ diam.) or tangentially elongated to as much as 20-25 \times 15-20 μ , with wall generally somewhat thinner and lighter in color than that of central cells; frequently collapsed.

In culture on 1.25% malt agar at 20°C, MYCELIUM sparse, speckled superficially with colorless to red or red-brown papulaspores. HYPHAE generally 3-6 μ diam., walls thin, colorless, with distant septa; some up to 8 μ diam., walls thin or thickened, colorless or acquiring a pale to deep red or brown color, eventually closely septate, the septa narrower than contiguous cells; some cells rounding to 10-15 μ diam., in short chains either infrahyphal or as branches. PAPULASPORES originating when such a branch bends back on itself providing the one or more cells that form the core around which are coiled the sheathing branches arising from the same or neighboring hypha(e); at maturity comprising 1-several central cells (10-25 μ diam.) with red to (red-)brown more or less thickened walls, and sheath usually a single layer of cells (10-15 μ diam. or up to 20 \times 10 μ) with walls generally thinner, colorless or weakly pigmented; additional layers of sheathing cells sometimes produced through further branching either from original sheath cells or neighboring hypha(e).

SUBSTRATE: on *Gladiolus* and *Crocus* corms, and on tubers of *Helianthus* in storage.

DISTRIBUTION: Ontario, Manitoba, British Columbia.

COLLECTIONS: Ont., Ottawa, IV.1972, DAOM 138183 (W.I. Illman). Man., Winnipeg, IV.1964, DAOM 105838 (E.C. Pound). B.C., Rossland, IV.1942, DAOM 7839 (G.E. Woolliams).

NOTES: The description is drawn from the field material cited and a culture of DAOM 138183.

Dodge & Laskaris (loc. cit.) noted the great similarity between their fungus and Preuss's illustration of *P. sepedonioides*, but at the same time referred to unspecified "important differences". S.J. Hughes compared Preuss's material with an isolate from that of Dodge & Laskaris; he also studied what J.W. Hotson described under the name of *P. coprophila* (Zukal) Hotson, as well as an isolate filed at C.B.S. under this name. And he concluded that all of these are conspecific. To me, *P. rubida* Hotson and *P. parasitica* (H. Karst.) Harz seem also too close for distinction at the specific level, for size and color of papulaspores appear to depend on conditions of growth at least to some extent, and evidence for parasitism by any of these fungi is not convincing. But *P. coprophila*, *P. rubida* and *P. parasitica* are described as producing conidia on "bottle-shaped sterigmata" (Hotson, Proc. Amer. Acad. Arts & Sc. 48(8): 227-306. 1912). These, therefore, for the time being continue to be considered separate species.

The genus and segregates from it are discussed by Weresub & LeClair (Can. J. Bot. 49: 2203-2213. 1971).

Behind the publication of *P. dodgei* lies a confusion of fungi and their names that was sorted out by Ainsworth (Trans. Brit. Myc. Soc. 32: 255-257. 1949) except for one point. Connors did not authorize Linder to publish the name. What Connors was primarily concerned about was that Dodge & Laskaris (loc.cit.) had made a comment that "the fungus which all previous authors...in America have assumed to be a true smut fungus, *Urocystis Gladioli*, is merely.....*Papulaspora*". Here was an implication that Bisby *et al.* (Fungi of Manitoba and Saskatchewan, Nat. Res. Council, Ottawa. 1938) could not distinguish a smut-ball from a papulaspore; and this, to Mr. Connors, was insupportable. He researched the matter and sent his manuscript to D.H. Linder at Farlow Herbarium, saying, in effect, that Bisby knew a *Urocystis* from a *Papulaspora*, and that the fungus which Dodge & Laskaris had treated might better be called *P. dodgei* than based on a name which clearly belonged to a smut. And Connors was right.

L.K. Weresub