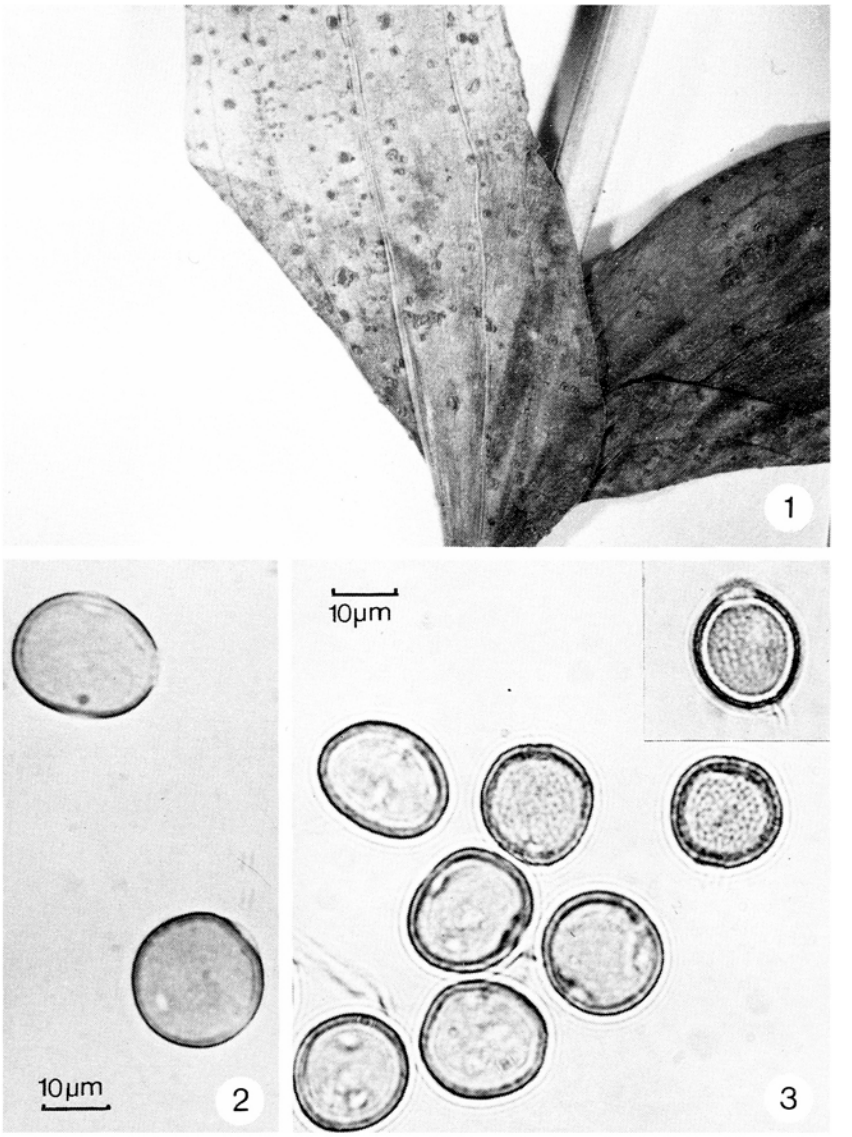
UROMYCES EUGENTIANAE



1, Uredinia amphigenous on *Gentianella amarella* ssp. *acuta*, DAOM 4063, × 3; 2, urediniospores from 1; 3, urediniospores and teliospores in surface view to show verrucose teliospore wall, N. Am. Ured. 385, Iowa, U.S.A.; 2, 3 scales = 10μm.

Uromyces eugentianae Cumm. Mycol. 48: 608. 1956.
≡ *U. gentianae* Arth. Bot. Gaz. 16: 227. 1891. non *U. gentianae* (Str.) Lev. 1847 = *Puccinia gentianae* (Str.) Röhl.

PYCNIA, AECIA not known. UREDINIA red-brown, amphigenous but mainly hypophyllous, pulverulent, scattered. UREDINIOSPORES broadly ellipsoid to obovoid, 17-27 × 14-23μm; wall yellow-brown 1.0-1.5μm thick except at pores 2.0-3.0μm including papillae, evenly and minutely echinulate, spines spaced about 2.0μm apart; pores 2-5, mainly equatorial becoming ± scattered when 4-5. TELIA and TELIOSPORES not seen in specimens cited.

HOST: Gentianaceae: *Gentianella amarella* (L.) Börner ssp. *acuta* (Michx.) J.M. Gillett.

DISTRIBUTION: Quebec, Saskatchewan.

COLLECTIONS: II on *G. amarella* ssp. *acuta:* **Que.**, Anticosti Island, 1933, DAOM 3804 (J. Adams). **Sask.**: 11 km S of Kennedy, 5 Aug. 1951, DAOM 44267 (Gillett 6002 & B. Boivin); Emma Lake, 17 July 1936, DAOM 4063 (R.C. Russell); Dana, 14 Aug. 1929, DAOM 997 = DAOM 77707 (Russell et al).

NOTES: Host nomenclature follows the study by Gillett (The gentians of Canada, Alaska and Greenland, Agr. Canada, Research Branch Pub. 1180, 1963) who includes *Gentiana acuta* Michx. as a synonym of the *Gentianella amarella* ssp. *acuta.* A number of the specimens cited, originally bore the former name. All 984 Canadian specimens of *Gentianella* (7 species) in the vascular plant herbarium (DAO) were scrutinized for rust but without success. Telia were not present in the specimens cited and there were none in the exsiccati in DAOM, but a few teliospores were found within the uredinia of the latter. Examination of Barth., N. Am. Ured. 385 on *Gentianella quinquefolia* (L.) Small ssp. *occidentalis* (Gray) Gillett (as *Gentiana occidentalis* (Gray) Hitch.) from Decora, Iowa provided the following teliospore characters: obovoid to ellipsoid, 20-22 × 17-18μm, wall orange-brown, 1.0μm thick, minutely and completely verrucose with warts < 0.5μm high and 0.5-1.0μm diam.; pore apical with a pale yellow cap, 1.5-2.0μm high and 5.0μm diam.; pedicel short, hyaline, fragile.

Gentianella amarella is known in all provinces and territories in Canada, except in the Arctic Islands, and is widely collected in western Canada. Given the apparent abundance of the host, there is currently no explanation for the scarcity of rust specimens. It is unlikely to be due to the absence of an alternate host because related rusts are all autoecious. Arthur (Manual of the rusts of United States and Canada. Purdue Research Foundation, Lafayette, Ind. 1934) describes the distribution as localized.

KEY TO THE AUTOECIOUS RUSTS ON GENTIANACEAE IN CANADA

1. Teliospores 1-celled, obovoid to ellipsoid, wall verrucose; urediniospores, broadly ellipsoid to obovoid, 17-27 × 14-23 μm, wall yellow-brown, pores 3-5 mainly equatorial; on *Gentianella* ..... *Uromyces eugentianae* (No. 298)
1. Teliospores 2-celled, wall smooth
   2. Teliospores clavate, borne in locules surrounded by palisade-like paraphyses, pores inconspicuous; Uredinia absent, on *Halenia* ..... *Puccinia halenia* (No. 296)
   2. Teliospores broadly ellipsoid, not borne in paraphysate locules, pores conspicuous 1/cell usually apical and septal; urediniospores broadly ellipsoid to obovoid, 19-35 × 15-25μm, wall pale yellow, pores 2-3 equatorial; on *Gentiana* spp. ..... *Puccinia gentianae* (No. 295)
1. Telia and teliospores unknown; urediniosores narrowly ellipsoid to obovoid, 23-46 × 11-16(-18) μm, pores inconspicuous, wall hyaline, spore contents yellow: on *Gentiana acuta* ..... *Uredo beringiana* (No. 297)

Arthur (op. cit.) describes two additional autoecious rusts on Gentianaceae viz. *Uromyces speciosus* Holw. on *Frasera* and *Puccinia swertiae* Wint. on *Swertia.* Neither rust is known to occur in Canada and both hosts have only limited presence. *Frasera* occurs in southwestern Ont. and *Swertia* in Queen Charlotte I., and extreme northwestern B.C.

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