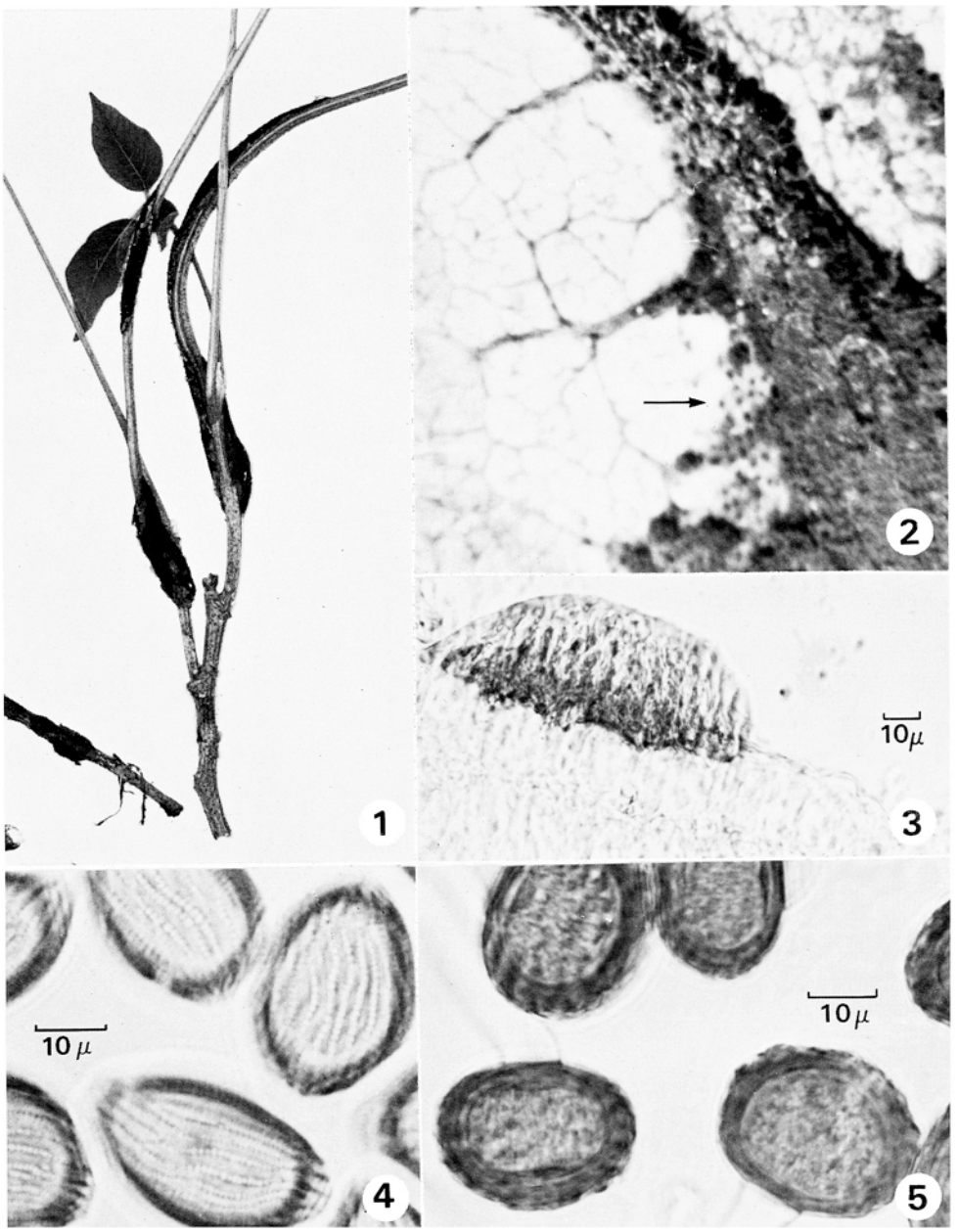
PILEOLARIA BREVIPES



1, Primary uredinia on stems and petioles (× 1); 2, primary uredinia and pycnia (arrow) on leaf vein (× 15); 3, pycnia in section; 4, primary urediniospores; 5, teliospores. 1-4 from DAOM 146472, 5 from DAOM 56775.

Pileolaria brevipes Berk. & Rav. in Berk., Grevillea 3: 58. 1874.
= *Uromyces toxicodendri* Berk. & Rav. in Berk., Grev. 3: 58. 1874.
≡*Pileolaria toxicodendri* (Berk. & Rav.) Arth., N. Am. Flora 7: 147. 1937.

PYCNIA subcuticular, blackish, accompanying primary uredinia (uredinoid aecia). PRIMARY UREDINIA amphigenous and on veins, petioles, stems, dark brown pulverulent. PRIMARY UREDINIOSPORES narrowly to broadly ellipsoid, ends apiculate by variously protruding hilum at base and papillum at apex, 32-48 × 17.5-31μ; wall yellow-brown 1.5-2.5μ, slightly thicker at ends, verrucose with longitudinal rows of warts usually in slight helical arrangement, verrucae cylindrical and blunt 0.7-1.5μ diam., 0.7-1.0μ high and 1.4-3.0μ apart; pores 1-2 near base. SECONDARY UREDINIA scattered on one or both leaf surfaces, not causing hypertrophy; spores as in primary uredinia. TELIA blackish, pulverulent, mostly epiphyllous and also on petioles, stems and peduncles. TELIOSPORES discoid (globoid - vertically compressed), 20-30 × 25-33.5μ; wall red-brown, 3.2-6.4μ thick, coarsely verrucose-rugose, pore 1 apical with a hyaline-subhyaline papillum; pedicel pale yellow-brown, ± flexuous, 30-65μ long and 4.5-6.1μ diameter.

HOSTS: O II[1] II[2] III: *Rhus radicans* L. vars. (= *Toxicodendron radicans* subspp. in Gillis, The Systematics and ecology of poison-ivy and poison-oaks (*Toxicodendron*, Anacardiaceae). Rhododora 73: 72-159; 161-237; 370-443; 465-540. 1971).

DISTRIBUTION: Nova Scotia, Quebec, Ontario, Manitoba, British Columbia.

COLLECTIONS (selected): on *Rhus radicans*: N.S., Kings Co., Gaspereaux, 19 July 1937, DAOM 4943. Que.: Pontiac Co., Bristol, 20 Aug. 1946, 19143 (I.L. Conners); Rouville Co., Abbotsford, 16 Aug. 1936, 4000 (D.B.O. Savile); L'Islet Co., L'Islet, 15 Aug. 1957, 56775 (J.A. Parmelee 572 & R. Kihl). Ont.: Carleton Co., Ottawa, 23 Sept. 1897 (Macoun); Constance Bay, 24 June 1974, 146472 (M.E. Elliott & J.A.P.); Lanark Co., Almonte, 15 Aug. 1951, 26756 (J.A.P. & L. Benedict); Nipissing Dist., Lake Timagami, 6 Sept. 1936 (TRTC 9532, H.S. Jackson); Thunder Bay Dist., Sibley Penn., 18 July 1955, 59742 (C.E. Garton); York Co., Toronto, 5 Sept. 1937, 84083 (Darker 6433); Middlesex Co., London, 2 Sept. 1910, N. Am. Ured. 413. (J. Dearness); Bruce Co., Saugeen Twp., 22 Aug. 1945, 132728 (W.D. Sutton). Man., East Kildonan, 26 June 1920, 196 (G.R. Bisby). B.C., 2 mi. NW Okanagan Falls, 29 June 1953, 55675 (J.A. Calder 9821 & D.B.O. Savile).

NOTES: Most DAOM specimens (35 Canadian and 34 U.S.A.) were collected from July to mid September, and show uredinia and telia — mainly on the leaf lamina. Fewer specimens bear rust on the vascular tissue but in one such specimen the infected tissue was noticeably swollen with reddish discoloration (DAOM 146472) and the leaves were becoming chlorotic. This specimen was collected early in the growing season (June) after an extended period of rainy weather. The host grew profusely at the edge of a stand of Jack pine and oak near a sandy beach along the Ottawa River. The infection was so heavy that the thought sprang to mind: "perhaps this pathogen could be used as a biological control agent for this noxious plant". And, later, it was of interest to read the notation on a Dearness specimen label (DAOM 593 from London, Ont.), "the worst fungus enemy of poison ivy in this district".

The heavy rust of DAOM 146472 was probably the result of optimum climatic conditions for the rust at a time when the host was just beginning its seasonal growth. In general, there are prolonged wet periods during May in the Ottawa district and one might expect other instances of heavy rust incidence. This has not been the case. Therefore, it is not optimum climatic conditions alone, but these in conjunction with other conditions, including the state of the host, which bring on a heavy rust outbreak. To be of real value as a control agent, rust needs to propagate readily under various climatic conditions.

Pileolaria brevipes is known on poison ivy in Canada, U.S.A, Mexico and Japan. In addition to *Rhus radicans*, the common host of North America, *Rhus diversiloba* in California and Oregon also becomes rusted.

A similar species, *Pileolaria patzcuarensis* (Holw.) Arth. has been collected in Canada from only two localities in Ontario (London and Port Frank). It is distinguished by the three equatorial germ pores on the urediniospores and the primarily longitudinal arrangement of the wall verrucae. Its host, *Rhus aromatica* Ait., occurs in southern Ontario and southern parts of the Prairie Provinces.

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