



1, Aecia hypophyllous systemic on *Physalis*, DAOM 13766, $\times 5$; 2, aeciospores from above. Scale = 10μ .

Aecidium physalidis Burr., Bot. Gaz. 9: 190. 1884.

PYCNIA yellow, conical, systemic, mostly hypophyllous, also on inflorescences. AECIA white, cupulate, hypophyllous amongst pycnia. AECIOSPORES globoid to ellipsoid $18-21 \times 16-19\mu\text{m}$; wall completely and minutely verrucose, $1-2\mu\text{m}$ thick including markings.

HOST; O, I: Solanaceae: *Physalis*.

DISTRIBUTION: Ontario.

COLLECTIONS: O,I: on *Physalis heterophylla* Nees.: Ont.: Carleton Co.: Ottawa: 3 June 1943, DAOM 13764 (D.B.O. Savile); 7 June 1943, 23923 (D.B.O.S.); 9 June 1943, 23922 (D.B.O.S.); 11 June 1943, 13765 (D.B.O.S.); 21 June 1943, 13766 (D.B.O.S.).

NOTES: Annotations in DAOM 13766 by Dr. D.B.O. Savile indicate that infected plants were first observed on 3 June. Thereafter only pycnia were in evidence except when one leaf of an isolated, single-stemmed plant was artificially dikaryotized on 15 June using moistened pycnia from other plants. This leaf was bagged and the entire plant kept moist by encasing it in wet cheesecloth. On 21 June, aecia were evident only on the dikaryotized leaf. These aecia were removed as DAOM 13766. The plant was re-covered as a protection against additional dikaryotization by insects. Older remaining leaves dried and fell off while newly formed upper leaves produced pycnia in abundance but aecia did not form. Dr. Savile concluded that this evidence was proof of self-sterility. His attempts to germinate the aeciospores were not successful, prompting the suggestion that this *Aecidium*, is an *Endophyllum* in which the spores germinate only after overwintering.

The suggestion that this rust is an *Endophyllum* is complicated by some inoculation studies of Baxter & Cummins (Plant Disease Reporter 47: 1040. 1963) which established that a systemic *Aecidium* on *Physalis* alternates to the grass *Buchloe dactyloides* Engelm. and forms the uredinia and telia of *Puccinia kansensis* Ell. & Barth. *Buchloe* is the only known telial host and it does not occur within 1660 km of Ottawa (Hitchcock, Manual of the grass of the United States, U.S.D.A. Misc. Publ. no. 200, 1950). It is an unlikely alternate host for this Ottawa *Aecidium*.

The collections cited are from a land-fill site near Dow's Lake, Ottawa and from the fill source, a sand pit area near Ottawa. At this latter locale, the systemic microform *Puccinia physalidis* (Fungi Canadenses No. 187) has been collected many times, but the aecidial rust, which was very localized, was wiped out by expansion of the pit. The accidental destruction of plants transferred to the Arboretum of the Central Experimental Farm, Ottawa made further experiments impossible.

J.A. Parmelee
P.M. de Carteret