MARSSONINA LEAFSPOT OF APPLE[1]

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Abstract

A leaf spot on apple caused by Marssonina coronaria (Ellis & J.J. Davis) J.J. Davis is reported for the first time in Canada from a bulk collection by John Dearness: The nomenclature and taxonomy of the fungus is discussed.

Bulk collections of miscellaneous parasitic fungi collected by John Dearness, and recently received from the Montreal Botanic Garden, are being examined by mycologists of the Plant Research Institute and prepared for general exchange. Some of this material was distributed by Ellis and Everhart in Fungi Columbiani; Ellis in North American Uredinales; and Sydow in Uredineen; and in Fungi Exotici Exsiccati; but for many of the specimens there is no record of previous distribution. One collection of rusted leaves of crabapple (Gymnosporangium juniperi-virginianae Schw. on Malus coronaria (L.) Mill.) carried abundant acervuli of "Marsonia coronaria Sacc. & Dearn." This leafspot fungus is not represented in accessioned specimens in the National Mycological Herbarium and is not recorded in Annotated Index of Plant Diseases in Canada (Conners, 1967). It is listed from the mid-west in the Index of Plant Diseases in the United States (USDA, 1960). Ascochyta mali Ell. & Ev., on twigs of apple (M. sylvestris Mill.), is distinct. It is expedient to record the occurrence in Canada of M. coronaria and to report my findings of its taxonomy and history.

The fungus compares favorably with the description by Saccardo and Dearness, although I find the spores to be slightly larger. My observations are: acervuli amphigenous, more conspicuous on upper leaf surface, subcuticular, ± circular on small (1-2 mm diam) coalescing dark spots. Conidia hyaline 2-celled, ellipsoid, slightly to conspicuously curved by the upper cell being usually larger and variously offset, each cell with 1-2 guttulae, 16-24 x 5-6.5 (-8)µ; conidiophores simple, hyaline, 3-8µ long.

This and the Saccardo-Dearness description compare well with Ascochyta coronaria Davis, and from letters in Dearness Herbarium, Davis saw this similarity and (in lit. to J. Dearness) indicated that Marssonina Magn. not Marssonia Fischer was the acceptable generic disposition. In 1914 he made the combination Marssonina coronaria (Ell. & J.J. Davis) J.J. Davis. This combination was made two years later than the one by Saccardo and Dearness but has precedence with the acceptance of Marssonina over Marssonia.

In the course of a literature search, another name of interest was found -- Marsonia mali P. Henn. described on Malus silvestris from Japan. The accompanying description is much like that for the Dearness material. Japanese specimens have not been seen but a specimen labelled Marssonina mali (P. Henn.) Ito from Romania was examined and could not be distinguished from North American material. My findings on the Romanian sample are: acervuli light brown, becoming darker and more conspicuous on the upper leaf surface, on small coalescing dark spots. Conidia hyaline long-ellipsoid, slightly curved, 2-celled, upper cell occasionally noticeably larger, 16-19.5 x 5-7µ; conidiophores hyaline, simple, ca. 5-6µ long. Some of the narrower spores germinate from each cell with sterigma-like projections to produce microconidia: bacillar, hyaline ca. 3 x 1µ.

It therefore appears that Marssonina leaf spot of apple occurs in North America, Europe and Asia. Its perfect state is unknown: possibly a discomycete related to Diplocarpon, which has Actinonema and Marssonina imperfect states (Ainsworth, 1963) and which matures in the spring following the season of conidial production. One of the Dearness specimens (coll. 13 Sept. 1924) bears the annotation "... Strung the collection on a thread and put under the hedge" [script Dearness]. No result was given to this obvious attempt to overwinter the fungus and the specimen itself is the September collection.

NOMENCLATOR:

Marssonina coronaria (Ell. & J.J. Davis) J.J. Davis, Trans. Wisc. Acad. 17:881. 1914.

≡ Ascochyta coronaria Ell. & J.J. Davis, Trans. Wisc. Acad. 14:94. 1903.

= Marsonia coronaria Sacc. & Dearn. in Sacc., Ann. Myc. 10:313. 1912.

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= Marssonina mali (P. Henn.) Ito, Bot. Mag. Tokoyo 32:206. 1918.

≡ Marssonia mali P. Henn. Engl. Jahrb. 37:164. 1905.

SPECIMENS EXAMINED:

On Malus coronaria (L.) Mill.: as Ascochyta coronaria Ell. & J.J. Davis: Racine, Wisc. 15 Sept. 1912, (F. Col. 1807); as Marsonia coronaria Sacc. & Dearn.: London, Ont. Aug. 1910 (F. Exot. Exs. 93), isotype and 8 packets in Herb. Dearn. no. 3287, all from vicinity of London, Ont. and collected between 1910 and 1924; as Marssonina coronaria (Ell. & J.J. Davis) J.J. Davis: London, Ont. July–Aug. 1910–11 (F. Col. 5032); Port Frank, Lambton Co., Ont. 10 Aug. 1912 (DAOM 133730) intermixed with G. juniperi-virginianae.

Literature cited

Ainsworth, G.C. 1963. Ainsworth and Bisby's dictionary of the fungi. 5th ed. Commonwealth Mycological Institute, Surrey, England.

Conners, I.L. 1967. An annotated index of plant diseases in Canada. Can. Dep. Agr. Publ. 1251. 381 p.

U.S. Department of Agriculture, Agricultural Research Service, Crops Research Division. 1960. Index of plant diseases in the United States. U.S. Dep. Agr. Handbook 165. 531 p.