NOTES ON SOME WISCONSIN FUNGI

M. J. THIRUMALACHAR AND MARVIN D. WHITEHEAD
Dept. of Plant Pathology, University of Wisconsin

During the course of studies of the parasitic fungi of Wisconsin as represented around Madison and Sturgeon Bay, several forms were collected which proved to be of special interest either because they had not been collected previously in Wisconsin, or they were collected on new sucepts for Wisconsin. Cultural studies of two of the fungi were made and are presented briefly in this paper.

(1) Venturia Clintonii Peck.


A leaf spot fungus on Cornus sp. was collected near Sturgeon Bay in the fall of 1947. The infection spots were circular, 3 to 5 mm. in diameter, brownish-black and often coalescing (Fig. 1). The center in each infection spot was jet-black, giving a characteristic frog-eye appearance. Microscopic examination revealed yellowish-brown hyphae massed in a stromatic layer beneath the cuticle. The strands of hyphae pushed between the epidermis and the intercellular spaces of the leaf tissue. In sections through the dark center portion of the infection spot, the hyphae were yellowish-brown, grouped in large masses as swollen hyphal cells, giving the appearance of chlamydospore-like structures (Fig. 3). No conidial stages were observed on leaves collected in the fall. In the spring of 1948, leaves with infection spots produced the previous season were collected on the ground to secure the overwintering stages of the fungus. The infection spots with their dark centers were clearly demarcated in the old leaves, with the perithecial stage of a Venturia sp. apparent in the light coloured area (Fig. 2). The perithecia were superficial, developing from the mass of hyphae in the leaf tissue (Fig. 3). The ascospores were uniseriate, yellowish-brown, ovate-ellipsoid, with the apical cell the larger of the two (Figs. 4 and 5).

The ascospores germinated readily when placed on water agar, and developed long germ tubes. Some of the germinating
EXPLANATION OF FIGURES

Fig. 1. Leaf of *Cornus* sp. showing infection spots x ½ nat. size.
Fig. 2. Enlarged view of infection spot x 5.
Fig. 3. Perithecium of *Venturia Clintonii* x 300.
Fig. 4. Ascospores x 1500.
Fig. 5. Ascus with ascospores x 800.
Fig. 6. Conidia of the *Cladosporium* stage x 1500.
Fig. 7. Showing the catenations of the conidia x 1320.
Fig. 8. Showing infection of *Dilophospora alopecuri* x 2.
Fig. 9. Spores of the same.
Fig. 10. Pycnidium of *Dilophospora alopecuri* x 300.
Fig. 11. Showing infection spots of *Ovularia pulchella* on red top, x 1.
Fig. 12. Conidiophores and conidia of same x 1320.
Fig. 13. Showing tufts of conidiophores x 1320.
Fig. 14. Sclerotia and sporophores of *Typhula phacorrhiza* x ½ nat. size.
Fig. 15. Showing the sclerotia on the overwintered culms of sudan grass x 1.
ascospores were picked out aseptically and transferred to potato dextrose agar. Colonies developing from the single ascospores were olive-green with a blackish tinge. The mycelium was creeping and branched, the conidiophores were erect and septate. Mature conidia were olive-green in mass, borne on the conidiophores in chains, of variable shape, sub-cylindric, ovate or ellipsoidal, 0 to 1-septate and measuring 8–12 by 4–5 μ. Detailed examination of the imperfect stage of the fungus revealed it to be a species of *Cladosporium* (Figs. 6 and 7).

The *Venturia* species under study was similar to *Venturia Clintonii* Peck, described by Peck (1874) on *Cornus circinata* collected near Buffalo, New York. The ascospores were stated to measure 10 μ long and arranged in an uniseriate manner within the ascus. In the *Venturia* species under study, collected on *Cornus* sp., the ascospores were uniseriate and measured 10 x 5–5.5 μ. Since we had no authentic specimen of *V. Clintonii* for comparison, the identification of the fungus under study was based upon the description given by Peck.

The development of the *Cladosporium* stage of the fungus in culture from the ascosporic cultures of *Venturia* adds another instance of the connection of species in these genera, although the conidial stage has not been observed in nature. Aderhold (1901) showed that the conidial stage of *Venturia cerasi* (Rabenh.) Aderh., inciting the cherry scab, was a *Cladosporium* and not a *Fusicladium* as was originally assumed. Plakidas (1942) showed that *Cladosporium humile* Davis, described by J. J. Davis in Wisconsin on *Acer rubrum* L. and *A. saccharinum* L. was the conidial stage of *Venturia acerina* Plakidas.

(II) *Dilophospora alopecuri* (Fr.) Fr.


*Dilophospora alopecuri* was first recorded in the United States by Bessey (1906) on the basis of material collected on *Calamagrostis canadensis* (Michx.) Beauv. by J. J. Davis in Wisconsin. The fungus was recorded on *Poa secunda* Preal. by Fisher (1940), on *Sitanion jubatum* J. G. Smith by Sprague (1942), and Greene (1948) collected the fungus on *Leersia oryzoides* L. and *Phalaris arundinacea* L. in Wisconsin. Atanasoff (1925), who studied the fungus in detail, showed the role of nematodes in the transport of the disease. The fungus has been recorded on
a large number of hosts in Europe which includes species of Festuca.

(III) *Ovularia pulchella* (Ces.) Sacc.


The fungus was described by Saccardo as parasitising orchard grass in Italy. Davis (1919) collected the fungus near Hixton, Wisconsin on *Agropyron tenerum* Vasey and described it as var. *Agropyri* Davis. The conidiophores of *O. pulchella* were stated to be simple or rarely branched, geniculate, bearing ovate, hyaline conidia which measured 8–12 μ long. In *O. pulchella* var. *Agropyri*, Davis (1919) described the conidiophores as straight or geniculate, 40–65 x 2–3 μ, and conidia 9–12 x 6–9 μ.

The infection spots on *Agrostis gigantea* were ovate to oblong, reddish-brown, surrounded by a pale margin, often coalescing to form large patches of 15 to 20 mm. long and 2–3 mm. broad (Fig. 11). Tufts of hyaline conidiophores, 40–50 x 3–4 μ, bearing terminally ovate, hyaline conidia measuring 10–13.5 x 6–8.5 μ were abundant on the material. Conidia were borne successively by sympodial branching of the conidiophore (Figs. 12 and 13). The older conidia, therefore, were pushed aside and appeared to be borne laterally on short branches. This conidiophore branching was similar to that described in *O. pulchella*. In the absence of any detailed comparative studies, we propose to place the *Ovularia* species on *Agrostis gigantea* under *O. pulchella* rather than assigning varietal status.

(IV) *Typhula phacorrhiza* Reichard ex Fries.


Cinnamon-brown sclerotia of *Typhula* were collected on overwintering stalks of oats and sudan grass in the early spring of 1948 (Fig. 15). The sclerotia were surface sterilized, plated on potato dextrose agar and incubated at temperatures between 8 and 12 degrees C. The mycelium developed rapidly from the sclerotia and produced more sclerotia on the surface of the medium. Sporophores were formed from the sclerotia which elongated rapidly as filiform structures. The sporophores were twanny in color and 100 to 180 mm. long (Fig. 14). The struc-
ture of the sclerotium and the characters of the sporophores of the *Typhula* under study compared very well with *T. phacorrhiza* given by Remsberg (1940).

(V) *Claviceps juneci* Adams.


The ergot on *Juncus nodosus* L. was reported in Wisconsin by Davis on a single collection of the fungus comprising sclerotia. In the present collection several inflorescences of *Juncus* sp. with ergot sclerotia were secured.

(VI) *Entyloma crustophilum* Sacc.


The leaf smut on red top incited by *Entyloma crustophilum* was recorded for Wisconsin by Clinton (1906) but was not included by Davis (1942) in the “Parasitic Fungi of Wisconsin.” The sori were minute and black and incited the yellowing and browning of the leaf tissue.

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**LITERATURE CITED**


