

INDIANA FUNGI—V.

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In the present paper, sixty-eight species are listed. For the most part, these have been collected since 1915. While they are not all new to Indiana they are new to the species in the herbarium of Indiana University. The object here is not merely to make a list of those fungi new to the state, but to study independently all those brought to our notice or collected for the purpose of study, in Indiana. In these studies, special attention will be given to the so-called Imperfect Fungi and to extend the number of hosts of a single species.

The author has appended corrections and additions to the descriptions already given, since many of the earlier descriptions are so meager that many specimens which should have been referred to them, have doubtless been published as new species. These merely needed redescriptions. It is the belief of the author that a more critical study of material gathered in quantity and in various conditions of development, will go far to discourage new species making, as well as to bring about the reduction of the number of those already listed. The discovery of new hosts is especially to be desired as the form of the fungus may vary considerably with the host. The neglect of this careful study in the past has been conducive to the making of new species. While many new species exist, and while we have a number for future publication, we have come to believe that we can render a greater service to botanical science by extending descriptions already published.

Under those listed, no attempt has been made to give complete descriptions, but to note the variation from the original descriptions and to extend those descriptions.

When the place of collecting is omitted, it is understood to be Monroe County; likewise, when the collector is not mentioned, the specimen was collected by the author.

PHYCOTOMYCETES.

Albugo Portulacae (D.C.) O. Kuntze. On living leaves of *Portulaca oleracea*. Greene County. September 20, 1914. Weatherwax. 3686.

Empusa Muscae (Fr.) Cohn. On body of common housefly. Fly fastened to leaf of ash. July 28, 1916. 3697.

USTILAGINALES.

Schizonella melanogramma (D.C.) Schroet. Abundant on *Carex picta*, Huckleberry Hill, May 25, 1917. 3746.

Sphacelotheca Sorghi (Link) Clinton. On broom-corn, causing grain smut. October 25, 1918. Weatherwax. 3758.

THELEPHORACEAE.

Corticium cinereum Fr. On dead hickory, Bollman's Woods. March 6, 1902. F. Mutchler. 3724.

Stereum spadiceum Fr. On dead red oak bark, Huckleberry Ravine, October 22, 1917. 3749.

CLAVARIACEAE.

Clavaria amethystina Bull. Ground under oak tree, Griffey Creek, July 15, 1920. C. E. O'Neal. 3784. A beautiful plant easily recognized by its amethyst color.

AGARICACEAE.

Amanita bisporigera Atk. Ellis Creek, July 10, 1919. O'Neal. 3760. Several specimens were found in the border of a woods associated with *A. phalloides* and *A. rubescens*. It resembles *A. phalloides* but is much smaller. It can be really told from *A. verna* by its two-spored basidia.

Amanita flavornubescens Atk. On ground, Campus, June 21, 1920. 3771a. Griffey Creek, July 15, 1920. O'Neal. 3771b.

Amanitopsis farinosa Schw. Two specimens found S. E. of Bloomington, growing on ground, July 26, 1919. O'Neal. 3764. Resembles *A. vaginata*, but is smaller and has a mealy appearance.

Amanitopsis vaginata Fr. var. *fulva* Sacc. On alluvial soil four miles east of Bloomington. O'Neal. July 3, 1919. 3763. Colored as *Amanita caesarea* but is readily distinguished by its generic character. Also collected on Campus, July 12, 1920. 3779.

Clitocybe dealbata Fr. In open woods associated with *Russula virescens*. O'Neal. June 26, 1919. 3761. Resembles *C. candida*, but may be distinguished by its apiculate spores.

Clitocybe monodelpha Morg. On ground (Buried roots?) Campus, July 12, 1920. Flora Anderson. 3780. (This specimen is very scaly and has the general appearance of an *Armillaria*. Scales reddish brown.)

Cortinarius cinnabarinus Fr. On ground among moss, Griffey Creek, July 13, 1920. O'Neal. 3782. Resembles *C. sanguineus* Fr., but has pale red flesh.

Lepiota caeruleoalba Pk. on edge of brook, June 26, 1919. O'Neal. 3762. This plant changes to a bright blue color on drying.

Paxillus involutus Fr. On ground, four miles east of campus, July 7, 1919. Dense woods. O'Neal. 3765.

Pleurotus applicatus Batsch. On dead maple, Jordan Field, February 3, 1902. Mutchler. 3725.

Russula squalida Pk. On Huckleberry Hill, April 27, 1916. Henmer, 3695.

POLYPORACEAE.

Boletus gracilis Pk. On ground in open woods, with *B. felleus*, Ellis Creek, June 26, 1919. O'Neal. 3759. Distinguished by its long and usually slender stipe.

Daedalia extensa Pk. On white oak and yellow poplar, near Borden, Clark County, November 2, 1908. A very fine and interesting fungus. This was sent to Professor W. A. Murrill for identification with the following note: "This fungus grew away from the light, spreading over the surfaces of the two kinds of wood where they lay on each other. It may be a *Poria* but it looked like a *Daedalia* when fresh."

Under the title of *Daedalia extensa* rediscovered. Professor Murrill (in

Mycologia p. 110, 1920) says in part: "This species was first described by Peck in his annual report in 1891 as follows: (Then follows Peck's report). The type collection is gone and there is nothing left but the description: but this, like most of Peck's descriptions, is exceedingly good. I have a specimen collected a few years ago at Bloomington, Indiana, by Van Hook (2398) on oak and tulip-tree wood. This specimen corresponds to Peck's description, except that the hymenium is avellaneous instead of whitish. I have compared it with a number of resupinate specimens of *Trametes mollis* and find that it differs from them just as Peck said—especially in the character of the pores, the thicker context, and the absence of any free margin. The young margin is tomentose and whitish, becoming fulvous or brown in dried specimens. To clear up a doubtful species is much better than to describe a new one: and mycologists are indebted to Professor Van Hook for his timely aid in this addition to our knowledge of a very rare and interesting species, which is now known from two localities instead of one." (Note: Through error this material was labelled as being collected at Bloomington. It should read as being collected at Borden, Clark County, Indiana.)

Fomes fulvus Gill. On *Prunus americana*, Sheet's Hill, April, 1916. 3693.

Fomes graveolens Schw. On limb blown from large standing yellow poplar, Clark County, May, 1920. 3767.

Polyporus delectans Pk. On dead maple twenty feet from the ground, Orange County, October 10, 1920. A. C. McIntosh. 3792.

Polyporus hispidus Bull. On living sugar maple, Kinser Pike, October 9, 1920. Mabel Katterjohn. 3791.

Poria incerta (Pers.) Murr. On beech, Brown County, October 22, 1908. A. G. Wood. 2033. This species is common on other deciduous woods. Murrill says it prefers conifers, where it produces brown rot. Also it attacks a large number of deciduous woods.

Poria medullapanis (Jacq.) Fr. This is *Polyporus dryinus* of B. & C. On red-oak, City Water Works, October 27, 1908. 2194. On maple, Clark County, November 22, 1908. 2436. On partially burned elm log, North Pike, March 3, 1908. 2587.

Poria semitincta (Pk.) Cke. On old yellow poplar fence rails, University Farm, July, 1920. 3795.

Ceratostomella barbirostris (Duf.) Sacc. Extremely common on dead maple throughout the southern part of the state. It is usually found on decorticated wood, but may occur also upon the bark. Fruiting specimen number 3673 grew over the bark. Specimens with spores were sought for eight years and spores not found until April, 1916, when it was determined. The spores are 5 to $7\frac{1}{2}$ by $2\frac{1}{2}$. The ascii are 33-38 by $3\frac{1}{2}$ to 5 microns. Olive-brown pubescence is abundant in number 3672.

Ceratostomella echinella E. & E. Jolietville, Hamilton County, January 17, 1914, G. B. Ramsey. The spores in this specimen (3681) measure $3\frac{1}{2}$ to $4\frac{1}{2}$ by $1\frac{1}{2}$ to $1\frac{3}{4}$. Ascii, 26 to 30 by $3\frac{1}{2}$ to $4\frac{1}{2}$.

Diatrype platystoma (Schw.) Berk. On *Acer Saccharinum*, 1911. Owens, 3676.

Erysiphe eichoracearum D. C. On leaves of *Aster*. Eel River, Greene County, September 7, 1914. Weatherwax. 3688. On leaves of *Taraxacum officinale*, July, 1920. 3781.

Eutypella scoparia (Schw.) E. & E. On bark of *Ulmus fulva*, Hamilton County, December 31, 1913. G. B. Ramsey. 3678.

Gyromitra esculenta (Pers) Fr. Campus, May 8, 1910. Owens. 2783.

Hypoxylon perforatum (Schw.) Fr. On decorticated elm, Mason's Woods, November 1, 1920. 3797. The perithecia were just arriving at maturity, and had not yet become perforate to any extent. This specimen resembles certain forms of *H. rubiginosum* and *H. fuscopurpureum* very closely. The stroma is $\frac{1}{2}$ to 1 mm thick, effused in oval or elongated areas 1 to 4 cm long. Color, ferruginous to chestnut-brown. Perithecia slightly elongated ($\frac{1}{2}$ mm long). Ascii long tapering, 150 to 190 by 6 to 9; p. sp. 75 to 85 by 6 to 9. Spores mostly 13 by $6\frac{1}{2}$.

Hypoxylon serpens (Pers.) Fr. On dead wood of red-oak, Boone County, December 20, 1913. Ramsey. 3566.

Microsphaera alni (D. C.) Winter. On oak leaves, 1916. 3734.

Nectria episphaeria (Tode) Fr. Parasitic on *Valsa* on beech bark, May 5, 1916. W. P. James. 3679. Makes the bark a beautiful red over large areas.

Nectria Ipomoeae Hals. On young sweet-potato plant, spring of 1916 (*Sphaeronema fimbriatum* on this same plant). 3706.

Nummularia Bulliardii Tul. On *Cornus florida* 1916. 3708.

Ophiobolus fulgidus (C. & P.) Sacc. On dead stems of *Ambrosia trifida*, Scott County, April 7, 1917. Bertha Hanger. 3735.

Rosellinia pulveracea (Ehr.) Fekl. On hard decorticated oak, Hamilton County, January 17, 1914. Ramsey. 3675.

Teichospora vialis (Fr.) Berl. & Vogl. On decorticated *Juglans cinerea*, November 20, 1913. Ramsey. 3674.

Valsa Linderae Pk. On *Lindera benzoin*, April 21, 1917. Hanger. 3736.

Valsaria exasperans (Gerard) Sacc. On oak (Red or scarlet), near Cascades, April 18, 1920. Mills. 3768.

FUNGI IMPERFECTI.

Sphacropsidales.

Actinonema Tiliae Allesch. On leaves of *Tilia americana*. Both on and under tree late in autumn. 3691.

Dothiopsis eunomiae Karst. May 19, 1917. 3740. This species was first described by Karsten in *Hedwigia* 1884 under the name of *Dothiora eunomiae*.

Phyllosticta Liriodendri Thüm. On living leaves of *Liriodendron tulipifera*, Campus, July 24, 1916. Hemmer. 3696.

Phyllosticta Smilacis E. & E. On leaves of *Smilax rotundifolia*, Brown County, October 10, 1914. Weatherwax. 3687. Spores vary slightly from the description as follows: 15 to 25 by 5 to 8 microns. One of the most striking things about this fungus is that one rarely finds spores in the pycnidia. We had systematically collected it for years but found the pycnidia empty. In *Torr. Bull.*, 1900, p. 572, Ellis and Everhart say: "This has been observed on various smooth-leaved species of *Smilax* for twenty years or more, but it does not appear to have been described." The probable reason for this is its habit of ridding itself of spores so quickly.

Septoria albaniensis Thüm. On leaves of *Salix nigra*, autumn. 3692. Our measurements of spores are: 25 to 42 by $2\frac{1}{2}$ to 3 microns.

Sphaerouenia fimbriatum (Ell. & Hals.) Sacc. On young sweet-potato plant, spring of 1916. (This and *Nectria Ipomoeae* were both in fruit on one plant.) 3707.

Sphaeropsis malorum Pk. On pear, May 15, 1917. Wade. 3739. On quince, October 24, 1916. 3709.

Vermicularia Dematium (Pers.) Fr. var. *microspora* n. var. On *Acer saccharinum*, Campus, March 17, 1916. For the most part, on decorticated wood. Also on inside and outside of loosened bark in the same region. 3673. Many varieties of this species have been described, based for the most part upon spore size and shape. The form as it appears here, has a remarkably small spore as compared with other forms heretofore noted. So noticeable is this difference that a varietal distinction becomes necessary. The following description as differing from the species type is here recorded:

Pyrenidia 150 to 500 microns (Usually 235 to 325.), varying greatly in size and shape; spines 125 to 300 by 5 to 7½, opaque, especially dark near the base, pointing outward; spores 5 to 8 by 1 to 2, hyaline.

Melanconiales.

Cylindrosporium Serophilariae Sacc. & Ell. On living leaves of *Scutellaria canescens*, Griffey Creek, July 7, 1920. O'Neal. 3790. Differs somewhat from the description as follows: the broad margin around the spots, is dark purple. Spores are septate and one end often broader. The three guttulae not noticeable. Acervuli about 50 microns in diameter. Habit on the leaves is much like *Septoria Serophilariae*.

Cylindrosporium Toxicodendri E. & E. On *Rhus Toxicodendron*, 1911. C. E. Sutton. 3528.

Cylindrosporium Ulmicolum E. & E. On living leaves of *Morus rubra*, Campus, October 15, 1915. This fungus was associated with a species of *Alternaria* which, however, seems to follow as a saprophyte. 3659. Spores 45 to 65 by 2 to 6, and mostly 4-septate.

Gloeosporium Betularum Ell. & Mart. On *Betula nigra*, Campus, June 31, 1920. These leaves were taken from young trees which had been shipped from Tennessee. Though differing much from the original description, there seems to be no doubt of the species being the same as described from Pennsylvania. (See Am. Nat. 1882, p. 1,002.) In our specimens, the acervuli are almost wholly hypophyllous and are variable in size, sometimes quite large and rupturing irregularly. The most striking thing about this species is the abundance of pointed spores. They are described as being obovate; however, they also have the lower end tapering to a point. 3774.

Gloeosporium nervisequum (Fekl.) Sacc. Belongs to *Gnomonia veneta* (Sacc. & Speg.) Kleb. On sycamore, University Farm, August 3, 1920. Spores are for the most part, 4 to 5 by 10 to 12. The acervuli are here usually on the upper side of the leaf and along the outer edges of the vein—that is, in two rows. 3793.

Marsonia Martini Sacc. & Ell. On living leaves of *Quercus robur*, Campus, June 25, 1920. 3775.

Hyphomycetes.

Alternaria Amaranti (Pk.) On leaves of *Amarantus retroflexus*, city of Bloomington, October 5, 1915. 3637.

Cercospora Mississippensis Tracy & Earle. On leaves of *Smilax rotundifolia*. 1916. 3732.

Cladosporium Paeoniae Pass. On leaves of cultivated *Paeony*, 1916. 3730.

Epicoccum purpurascens Ehrbg. On *Sorghum* following a *Septoria* leaf spot. Lawrence County, October 19, 1916. 3711.

Fusielodium Alopecuri E. & E. On a grass. University Waterworks area, September 30, 1914. 3682.

Ramularia arvensis Saee. On *Potentilla monspeliensis*, Getty's Creek, June 13, 1920. In our specimens, the spots have reddish-brown margins; conidiophores slightly wavy and hyphophyllons as well as epiphyllons; conidia 10 to 37 by 3 to 4, the two-celled ones 16 to 37 by 3 to 4. On living leaves killing them. The similarity of these affected leaves to those of strawberry attacked by *Mycesphaerella* is very striking. 3769.

Ramularia Celastri Ell. & Mart. On *Celastrus scandens*, Lawrence County, October 19, 1916. 3702.

MYXOMYCETES.

Ceratiomyxa fruticulosa (Mnell.) Macbr. On rotten log, Ellis Creek, July 25, 1919. O'Neal. The so-called "pillars" resemble coarse white threads of a Hyphomycete. 3778.

Lindbladia effusa (Ehr.) Rost. Single specimen found on a decaying log north of City Waterworks, July 18, 1919. O'Neal. Specimen much blackened by premature drying. 3766.

Tilmadloche polycephala (Schw.) Macbr. On living leaves of *Polygonum avicinare*, Bloomington, July 7, 1920. W. H. Adams. 3777.

Indiana University,
December, 1920.