INDIANA FUNGI—VII.

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The plants described in this seventh paper on "Indiana Fungi", have been collected, for the most part, during the seasons of 1922 and 1923. Though we are still concerned in listing all species new to us, new to the state and new hosts, we are now primarily concerned in making additions to present descriptions or in some instances, even completely redescribing the species in the light of better material, finding it extremely important to make collections throughout the season rather than to be content with a single collection. The color and size of spots and the host plant are often constantly changing. Our hope is that we may not only be of assistance in reducing the number of species names, but by extending our descriptions, to prevent some new species from being named unnecessarily. It is very evident that the things left unsaid in the so-called "one line descriptions", have been utilized too freely in selecting characteristics for certain new species. It is a great source of satisfaction to mycologists to note that our most recent new species descriptions are very complete.

Indiana offers one of the most fertile fields in the United States for the study of fungi. Many of the wooded valleys of southern Indiana, rich in the Agaricaceae, await the student of that group. Much of our forest area is still in a primeval condition as far as fungi are concerned, and many undescribed species still exist. Donaldson Farm, now a part of Indiana University, retains all of its largest trees both living and dead and therefore offers what is now the best forest collecting ground in Indiana.

PHYCOMYCETES.

Plasmopara Geraniae (Pk.) Berl. & De Toni. On living leaves of *Geranium maculatum*, Campus of Indiana University, June 1, 1922. Collected by Adams. No. 3920.

Peronospora parasitica (Pers.) De Bary. On living *Lepidium Virginicum*, where it is especially noticeable in rings around the stems. Coll. Weatherwax. May 18, 1922. 3919. Monroe County.

ASCOMYCETES.

Calosphaeria princeps Tul. On dead peach limbs. Orange County, January 1, 1921. McIntosh. 3798. Fruit bodies seated beneath outer bark on layers of inner bark.

Caryospora putaminum (Schw.) DeNot. On old peach pit on ground, May 17, 1923. Monroe County. 3945.

Coccomyces Kerriae Stewart. On living stems and leaves of *Kerria Japonica*, Campus, 1923. Kay. The conidial stage of this fungus which is a *Cylindrosporium*, appeared on the foliage early in July causing defoliation. It immediately appeared as black blotches on the canes where it persists. According to Stewart, the ascus stage develops on these stems. (Phytopathology VII, pp. 399 to 407, 1917.) So far as we know, this is the first appearance of the

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fungus on the campus though no new shrubs of this species have been planted for fifteen years.

Epichloe typhina (P.) Tul. On living *Sphenophotis pallens*, Campus, 1922. The conidial stage was first found May 18, and the ascus stage on June 26. Etter. 3917.

Erysiphe Polygoni DC. (*E. Liriodendri* Schw.) On fallen leaves of *Liriodendron tulipifera*, October 23, 1921. The mycelium of this fungus was very conspicuous. 3886.

Exoascus Pruni Fckl. On fruits of plum, forming bladders. G. W. Blaydes. 1922. Putnam County. 3944.

Gnomonia veneta (Sacc. & Speg.) Kleb. On leaves and twigs of *Platanus occidentalis*, Orange and Lawrence counties, May 13, 1922. 3918. All twigs on many trees were killed in these and Monroe counties in the spring of 1922. The conidial stage, *Gloeosporium nervisequum* (Fckl.) Sacc. appears at this time.

Guignardia Aesculi (Pk.) Stewart. (See *Phyllosticta Paviae* Desm.)

Hypoxylon rubiginosum (Pers.) Fr. On decorticated log of *Liriodendron tulipifera*, Borden, Clark County, October 20, 1922. 3934. This is both a new host and a new county for this fungus.

Nummularia discreta (Schw.) Tul. On dead branches of *Ulmus americana*, Orange County, January 1, 1921. McIntosh. 3802. Although this fungus is very common on apple where it is productive of a serious canker disease, this is the first time we have noticed it on elm.

Rhytisma punctatum (Pers.) Fr. On living leaves of *Acer saccharinum*, Harrodsburg, Monroe County, October, 1921. J. K. Van Hook. 3893. On *Acer nigrum*, Campus, Monroe County, 1922. Anderson. 3938.

Sclerotinia cinerea (Bon.) Schroet. On plum mummies, Putnam County, April 15, 1922. Blaydes. 3916.

Sphaerospora confusa Cke. On burnt ground, Bean Blossom Valley, Monroe County, July 16, 1923. Anderson and Bell. 3960.

Xylaria subterranea (Schw.) Sacc. On old wood taken from Donaldson's Cave, July 16, 1923. Hawkins. 3958.

BASIDIOMYCETES.

USTILAGINALES.

Entyloma compositarum Farl. On basal leaves of *Senecio obovatus*, Harrodsburg, Monroe County, April 30, 1922. 3913. Especially destructive to young leaves. On the same host, State Park, Owen County, May 1, 1922. 3914.

UREDINALES.

Kuhneola obtusa (Strauss) Arthur. Uredo stage abundant on *Potentilla canadensis*, State Park, Owen County, May 1, 1922. Adams. 3915.

Puccinia Silphii Schw. On living stems of *Silphium perfoliatum*, near Owensburg, Greene County, July 14, 1923. Hawkins. 3963.

AGARICACEAE.

Clitocybe multiceps Pk. J.R.S. Scott, Lawrence County, July 31, 1923. 3968.

Lentinus lepideus Fr. On living *Picea excelsa*, City Cemetery, Monroe County, May 30, 1922. 3921. Gills somewhat narrower than usually given in descriptions. Perhaps not well developed.

Panus torulosis Fr. On rotten wood, Monroe County, May 21, 1923. 3946. Some of the young stems of this edible species are a beautiful pallid violet to aniline lilac.

Pleurotus sapidus Kalchbr. On *Quercus* log, Monroe County, December 14, 1921. Hudelson. 3911. One specimen with pileus more than thirteen inches broad. Spores pale grayish vinaceous to light grayish vinaceous. Beautiful spore-prints were obtained from this specimen and exposed to strong light for one year. Only slight fading was apparent.

Pleurotus serotinoides Pk. On *Ulmus americana*, December 1, 1921. Hudelson. Monroe County. 3910.

Volvaria bombycina (Pers.) Fr. On living maple, Lawrence County. Scott. 3967.

POLYPORACEAE.

Polyporus delectans Pk. On dead *Acer* two feet from ground, Orange County, October 10, 1920. McIntosh. 3792.

CLAVARIACEAE.

Sparassis crispa (Wulf.) Fr. On ground, Bean Blossom Valley, Monroe County, July 18, 1922. Hudelson. 3927. A most delicious edible species.

FUNGI IMPERFECTI.

SPHAEROPSIDALES.

Actinonema Tiliae Allesch. On living leaves of *Tilia americana*, Winona Lake, Kosciusko County, August 22, 1921. 3894.

Byssocystis tevtilis Riess. Parasitic on powdery mildew of *Plantago Rugelii*. Monroe County, 1922. This rare species was found while identifying *Ramularia Plantaginis* Pk. which was taken from the same leaf. The fungus corresponds exceptionally well with description except that the pycnidium was about 50 by 35 microns. Conidiophores apparently present and intercalary spores two-celled.

Discosia artocreas (Tode.) Fr. On leaf spot of *Poenia officinalis*. Spots apparently caused by an undescribed species of *Septoria*. Monroe County, July 20, 1923. 3964. Found also on leaves of *Prunus serotina*, July 28, 1923. McKay. Monroe County. 3965.

Phyllosticta commonsii E. & E. On living leaves of *Paeonia officinalis*, Monroe County, July 17, 1923. 3962. Agrees well with the description, except that of the spores which are given as 4 to 5 (exceptionally 6 to 7) by 2 to 2.5 microns. (See Journal of Mycology, Vol. V, pp. 146. 1889.) In our specimens, the spores are decidedly greenish yellow in mass and measure 5 to 7.5 by 3.5 to 5 microns.

Phyllosticta cornicola (DC.) Rabh. On living leaves of *Cornus florida*, Owen County, July 15, 1923. 3961. The pycnidia, which are given by Saccardo as 150 to 200 microns and by Ellis and Everhart as 80 to 100, measure here 65 to 85. The pycnidia have definite pores 7.5 to 12.5 microns in diameter. The spores agree with measurement given by E. & E. They are granular.

Phyllosticta Labruscae Thuem. On living leaves of *Ampelopsis tricuspidata*, Monroe County, June 14, 1920. 3801.

Phyllosticta melaleuca E. & E. On living leaves of *Ulmus americana*, Monroe County, July 13, 1923. Hawkins. 3957. This species, described in North American Phyllostictas, p. 43, in 1900, was apparently not placed in Saccardo. The spots are small and circular. Pycnidia, 75 to 150, with pore 25 to 30. Spores, 2.5 to 3 by 5 to 6, elliptical, dark olive and appearing dark yellow in mass. Very numerous. A close observation of our specimens suggests a *Coniothyrium* rather than a *Phyllosticta*.

Phyllosticta minima (B. & C.) E. & E. On living leaves of *Acer rubrum*, Kerr Creek, June 22, 1922. 3783. Griffey Creek, June 18, 1923. 3947. Also on *Acer saccharinum* on small bushes mixed with number 3947, and on the latter host on small bushes near ground on the Campus. 3949. This is one of our most common leaf diseases and abounds in early June on maples particularly on north hillsides. This species seems to be identical with *P. acericola* C. & E. Our description which varies somewhat with the original is as follows: *Spots* usually few and small, 1 to 5 mm. in diameter, sometimes larger or by confluence spreading over a large portion of the leaf, circular or angular, olive brown to sepia above, with small (1 mm.) pale center, hair brown below; *pycnidia* almost wholly epiphyllous, scattered over the entire spot but not occurring to any extent in the light-colored center of the spot, 65 to 120 microns, usually about 90, with a distinct pore averaging 12.5 in diameter; *spores* 5 to 7 by 8 to 10, ovate, elliptical or subspherical (tending to angular sometimes when dried) granular, hyaline and surrounded by a thin coat of slime.

Phyllosticta Paviae Desm. On leaves of seedlings of *Aesculus glabra*, Marion County, April 30, 1921. 3897. Monroe County, August 1, 1920. 3820. This is among our earliest Imperfects to develop and should be collected in the early spring months to assure the finding of an abundance of spores. It is occasionally quite destructive to the leaves of small plants. (See specimen number 97, Underwood's Indiana Flora, collected in Brown County. For a detailed account of this species, see Phytopathology, VI, pp. 5 to 19, by V. B. Stewart.)

Phyllosticta solitaria E. & E. On leaves and fruit of apple, Monroe County, August 1, 1922. 3929. July 4, 1923. Hawkins. 3956. The single, or at most, two or three pycnidia, in all examinations made (upon leaves from specimen 3956) contained spores. According to Ill. Circ. 241, "Within the spots on the leaves pycnidia are formed, but according to most authorities remain sterile, that is, no spores are produced". The small spots on leaves are often triangular, quadrilateral, etc., determined by leaf veins which limit them. Our spores from fruit and leaves are 8 to 10 by 5 to 7 making them broader than usually given. The pycnidia range from 75 to 100. Pore, 10 to 13, in diameter. Within the past decade, this has gradually become one of the most important apple diseases in this section of Indiana, where it does great injury to leaves, fruit and

twigs. In some unsprayed orchards, every fruit on certain trees was cracked open on account of it.

Septoria erigerontis B. & C. Monroe County. 1923. 3969. One of our most common parasites. These have pycnidia 100 to 125 microns in diameter; spores, 1.5 to 2 by 30 to 70. These spores evidently never have been carefully measured. *S. erigerontis* B. & C. is said to have spores 38 microns long and those of *S. erigerontea* Pk. are given as 25.

Septoria piricola Desm. On leaves of *Pyrus communis*, Clark County, October 1, 1922. Trees practically defoliated. 3939.

Sphaeropsis malorum Pk. On apple leaves and fruit October, 1920. Common. 3803.

Vermicularia Dematium (Pers.) Fr. On dead spots in leaves of *Fraxinus americana*, August 1, 1923. Monroe County. 3971.

Vermicularia Liliacearum Westend. On living leaves of *Funkia ovata*, July 16, 1920. 3789. On *Convallaria majalis*, July 16, 1920. Kay. Both collected in Monroe County. Spots oval or elongated, spreading indefinitely, border brown, center light; pycnidia globose, oval, or varying in shape and size up to 125 microns in diameter; setae on or around the pycnidia, dark brown, 50 to 100 by 5 to 6, lighter at tips, septate, sometimes bent or enlarged variously at base; spores fusiform, mostly acute, some obtuse, for the most part, curved, usually two guttulate, hyaline, 3 to 4 by 12 to 25 microns.

MELANCONIALES.

Gloeosporium nervisequum (Fckl.) Sacc. (See *Gnomonia veneta*.)

HYPHOMYCETES.

Cercospora ampelopsidis Pk. On living leaves of *Ampelopsis quinquefolia*, Lawrence County, July 16, 1922. 3925.

Cercospora canescens E. & M. On living leaves of Lima bean, Clark County, October 1, 1922. 3931. On common bean, *Phaseolus vulgaris*, Monroe County, July 30, 1923. 3973. Since our specimens vary somewhat from the original description, a redescription is added for Lima bean. Spots on dried leaf, fading out and becoming paler in center, circular or irregular, 1 to 10 mm. in diameter, very numerous, sometimes showing concentric rings, often coalescing and covering large areas finally killing the leaves; below, the spots about as evident, but not becoming so pale in the center. Conidiophores amphigenous, brown, straight or curved, sometimes nodulose, 50 to 275 microns long, slightly tapering above and some paler at tip. Spores straight or curved, hyaline, 5 to 20 or more septate, 3 to 5 by 100 to 225.

Cercospora cercidicola Ell. On living leaves of *Cercis canadensis*, Monroe County, June 22, 1923. 3972. This specimen varies from the description as follows: Conidiophores 100 to 150 by 4 to 5, bearing several spores, fasciculate character noticeable, the lower half frequently forming a column; spores yellowish, 18 to 55 by 4 to 6, one to three septate, when typically developed about 50 by 5 and two septate.

Cercospora flagellaris E. & M. On living leaves of *Phytolacca decandra*, Monroe County, July 28, 1923. Kay. 3966. Our specimens show conidiophores to 150 by 4 to 6; conidia 40 to 175 by 3 to 5, and to 12 or more septate. They are described as being 8 to 10 septate. They should be described as being pluri-septate.

Cercospora Noreboracensis E. & E. On living leaves of *Vernonia Noreboracensis*, Monroe County, September 10, 1921. 3888. This fungus defoliates the plants at the base advancing upward. Agrees well with the description, except: Spots very definite, brown, with dark purplish border, circular or angular, to one cm. in diameter, on old leaves spreading more indefinitely, or even without spots. Spores 3 to 5 by 20 to 70, wider than described, and many tapering above as is characteristic of the genus.

Cercospora oculata E. & E. On living leaves of *Vernonia*, Monroe County, July 1, 1923. 3954. In our specimens, conidiophores 25 to 30 by 4 to 5, curved, nodulose or serrate at tip, olive; spores continuous to five septate (mostly three septate), long elliptic to attenuate according to size of spore, sometimes with tapering truncate base, 15 to 55 by 5 to 7. On leaves with a *Stagonosporium* which makes similar spots.

Cercospora Ribis Earle. On *Ribes rubrum*, defoliating them, Clark County, October 20, 1922. 3932.

Cercospora Rubi Sacc. On living leaves of *Rubus*, Clark County, October 20, 1922. 3935.

Cercospora Sanguinariae Pk. On living leaves of *Sanguinaria canadensis*, Lawrence County, July 4, 1922. 3923. Agrees unusually well with the description. Our material shows spores 35 to 70 by 3 to 4 and many 3-septate. Some taper from enlargement above base as is typical of the genus.

Ramularia Brunellae E. & E. Agrees well. Addition to description: Conidiophores sometimes arising from a dark-colored tuberculate partly immersed base. Spores 6 to 17 in length, sometimes guttulate at the center giving the appearance of a septum. (See Jour. Mycol. 1889, p. 69.)

Ramularia decipiens E. & E. (Jour. Mycol., Vol. I, p. 70.) On *Rumex obtusifolius*, Monroe County, October 20, 1920. 3817. In this material the spots are numerous, brown, with small white centers, and surrounded by a greenish purple border. The spores are mostly 12 to 25 by 4 to 6, continuous, becoming 1-septate, slightly truncate at point of attachment. This species is very common in this county.

Ramularia Plantaginis Pk. On *Plantago Rugelii*, Putnam County, June 27, 1922. Blaydes. 3942. The fungus was here associated with *Byssocystis textilis* described herein.

MYXOMYCETES.

Physarum nefroideum Rost. On dead leaf of *Acer saccharinum*, June 22, 1923. Anderson. 3951.