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Fungi New To Iowa¹

By J. C. GILMAN, L. H. TIFFANY, and R. W. LICHTWARDT

In carrying on mycological investigations of diverse sorts, fungi that have an especial interest are frequently encountered. Such fungi may be noteworthy because of their rarity, the fact that they are on hosts not hitherto listed for them, or have apparently come from great distances. Twelve species are included, with descriptions and illustrations when the latter were available. Two *Cokeromyces recurvatus* and *Syncephalis reflexa*, are Phycomycetes; seven, *Diaporthe taleola*, *D. phaseolorum*, *Fenestella vestita*, *Bysochlamys nivea*, *Myxotrichum spinosum*, *Lophotrichus ampullus*, *Leptosphaeria gigaspora*, are Ascoycetes; and three, *Hyalothyridium calamagrostidis*, *Crocicreas atroviridis*, and *Septoria caraganae*, belong to the Fungi Imperfecti. Their descriptions follow:

Cokeromyces recurvatus Poitras (9)

Mycelium rather slow-growing on culture media, producing reproductive structures rather quickly, sporangioles (Fig. 4) formed at the tips of long recurved stalks which arise from a terminal vesicle of usually unbranched sporangiophores which extend up to 500 microns above substrate, usually 325 microns high; average diameter of sporangiophores about 9 microns; terminal vesicles 12.6-31.5 microns in diameter, usually about 21 microns; sporangiole stalks recurved and twisting when mature, variable in length, 60-120 microns long, usually about 80 microns, about 2.2 microns in diameter with wall thicker and darker than that of the vesicle; sporangioles essentially globose, 8.4-12.6 microns in diameter, usually about 10 microns, outer wall smooth, inner surface often reticulate by a deposit, 5-30 or more formed from each vesicle, usually about 20-22; spores variable in size, ovoid to somewhat irregular, commonly 2.5-4.5 microns, not striate, smooth-walled, except the outer ones in each sporangiole that may have a reticulate deposit on outer surface, usually 12-20 in each sporangiole. Conidia and many-spored sporangia absent. Zygosporangia (Fig. 3) in great abundance between copulating branches from superficial hyphae, outgrowths of sporangiophores or frequently from suspensors of more mature zygosporangia, walls rough with prominent, variable, blunt rounded or sharply pointed projections up to 4 microns in length, zygosporangia globose, brown when mature, 33.5-54.5 microns in diameter including projections, usually about 43-45 microns, homothallic.

On squirrel dung, Ames, Iowa, October, 1956, R. W. Lichtwardt.

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This species was isolated several times from a semi-pet corn-fed squirrel.

***Syncephalis reflexa* van Tieghem (12)**

Fruiting hyphae (Figs. 1 and 2) 80-120 microns high, with a slightly thickened base, but otherwise cylindrical, 8-12 microns thick and strongly curved at the tip. Heads about 40 microns wide, with numerous basal cells which carry the part-sporangia. The last contain 3-5 cylindrical spores, 6-8 x 3-4 microns.

On *Rhizopus nigricans* Ehr. on corn kernels, Story and Des Moines Counties, R. W. Lichtwardt.

Our collections most closely resembled this description but the spores are elliptical and the fruiting-hyphae are somewhat higher (200-250 microns) with larger spherical vesicles (50-60 microns in diameter). Both sporophores and spores were slightly yellowish.

***Diaporthe taleola* (Fr.) Sacc. (11)**

Appearing on the surface as small conic pustules with closely adherent periderm and a central, circular to fusoid, whitish or blackened disk, 0.2-1 mm in diameter. Sometimes with stout, hemispheric, erumpent ostioles. Entostromata isolate, definitely outlined beneath by a sharp ventral zone entirely within the bark. No dorsal zone present. Perithecia mostly somewhat radially elongated, 240-400 x 320-400 microns, arranged in a definite cluster within the isolate entrostromatic area and beneath a definite white conic to pulvinate ectostroma. Ostioles collectively erumpent through this ectostroma. Asci (Fig. 11) long-cylindric, with stipe-like base and a refractive ring at the apex, usually eight, sometimes 4 spores, 130-160 x 10-13 microns. Spores (Fig. 12) uniseriate, broad-ellipsoid, two-celled, hyaline, constricted at the septum, with cylindrical, hyaline apical appendages, 6-10 x 1-1.5 microns, and 2-3 lateral, somewhat longer appendages radiating from the region of the septum. Ascospores 17-25 x 7-9:5 microns.

On *Quercus macrocarpa* Michx.

Ames, September 5, 1955, R. M. Lewis.

Quercus spp.

Ames, April 9, 1955, R. M. Lewis.

March 19, 1956, L. H. Tiffany.

Lake Okoboji, August, 1956, L. H. Tiffany.

Wehmeyer found this species confined to Europe, so this report is the first from America. Our collections indicate its wide distribution in the state.

***Diaporthe phaseolorum* (Cke. & Ell.) Sacc. (10)**

Surface more or less blackened over wide areas. Ostioles short conic to elongate-filiform, sinuous, 120-400 x 50-80 microns, erumpent separately. Dorsal zone along bark surface; ventral zone usually absent, occasionally present laterally or along the pith. Perithecia small, 160-350 x 110-200 microns, scattered or crowded. Asci cla-

vate, 28-46 x 5.5-8 microns. Spores biseriate, broad-fusoid, two-celled, hyaline, constricted at the septum, 8-12 x 2-3.5 microns.

On *Phalaris arundinacea* L., Lake Okoboji, July, 1957, L. H. Tiffany. This host has not been previously reported for this species.

Fenestella vestita Fr. (5)

Stromata suborbicular 2-3 mm in diam., with large tuberculiform disk; perithecia 8-15 in a stroma, irregularly crowded, $\frac{1}{2}$ mm in diam., globose or angular with cylindrical necks convergent to the black papilliform ostioles, not exserted; asci (Fig. 10) cylindrical, 120-150 x 12-15 microns (p. sp. 80-100 microns long) with filiform paraphyses; ascospores uniseriate, elliptical, olive-brown, 3-5 septate and muriformly divided, scarcely constricted at the septa, 12-20 x 10-12 microns. (19-25 x 10-12 microns, 20-26 x 10-14 microns.)

On *Caragana* sp., Ames, December, 1954, R. M. Lewis.

Byssochlamys nivea Westling (2)

Colonies on Sabouraud's agar rapidly growing; mycelium sparse, mucoraceous, white, becoming cream as the asci mature, reverse yellow. Asci (Fig. 5) in clusters within loosely aggregated hyphae, without a definite peridium, cream colored or hyaline, obovate, 11.2-12.6 x 8.1-8.5 microns, 8-spored, walls ephemeral; ascospores hyaline, ovoid-ellipsoid, smooth, 3.0-5.5 x 2.5-3 microns. Conidia smooth, broadly ellipsoid, often flattened at one end, in chains, one-celled, 3.8-6 x 2.5-5 microns. Aleuriospores fairly abundant, smooth, 4-7 x 2.5-5 microns.

On maple logs, Amana, 1955, W. E. Eslyn.

On corn kernels, Chickasaw Co., July, 1956, R. W. Lichtwardt.

This species was consistently isolated from wood-cores from maple logs, and once from surface-sterilized corn kernels.

Myxotrichum spinosum Mass. and Salmon (8)

Cleistothecia (Fig. 6) gregarious, yellow-brown, about 1 mm in diameter, peridium a myceloid reticulum composed of arcuate hyphae from which branch straight, rigid, black-brown, opaque, smooth, radiating setae; asci numerous, globose, eight-spored, 6 microns in diameters; ascospores ellipsoid, smooth, hyaline, $3 \bar{x}$ 2 microns.

On bark of oak, Ames, September, 1954, L. H. Tiffany.

This species has been found on the pericarp of pineapple as well. Both the oak and pineapple specimens were being stored at 45° Fahrenheit.

Lophotrichus ampullus Benjamin (1)

Mycelium on dung agar developing rapidly, remaining white, submerged, rarely with aerial hyphae; perithecia (Fig. 9), forming in 3-5 days, maturing in 2-3 weeks, black, globose, 150-260 microns in diameter (av. 195 microns), immersed or partially superficial, with dark, rhizoidal-like mycelia on submerged parts, or lateral hairs in

the form of colorless, septate, aerial hyphae on superficial parts; walls thin, membranous, necks, usually one, occasionally two, on a perithecium, black, 130-760 microns long or longer, more or less uniform in diameter, 40-60 microns; lateral hairs colorless, septate, acuminate, up to 150 microns long, 2-3 microns in diameter at base; ostiole surrounded by many long, septate, thick-walled terminal hairs, straight or irregularly contorted, up to 1.6 mm long, 3.8-5.3 microns in diameter (av. 4.3 microns), walls dark smoky in color, more or less densely encrusted, tips curved to circinate; asci subglobose to broadly clavate and short stalked, colorless, 20-34 x 10-20 microns, very evanescent, 8-spored, paraphyses lacking; ascospores (Fig. 8) extruded as a cirrus, frequently up to 1.5 mm in length, bright copper colored in mass, hyaline, lemon-shaped, tips thin walled, 6.8-10.6 x 5.3-7.6 microns (av. 8.7 x 5.9 microns), germinating at both ends.

From cotton plugs in contact with soil from cultures of algae, Ames, February, 1957, J. D. Dodd.

Leptosphaeria gigaspora Niessl. (7)

Perithecia scattered, immersed in the leaf-parenchyma, globose, ½ mm in diameter, ostioles scarcely erumpent from the flattened apex; asci (Fig. 13) broadly cylindro-clavate, subsessile with a rounded tip, 144-150 x 22-24 microns, with few paraphyses; eight-spored; ascospores (Fig. 14) in two or three ranks; elongate-fusoid, 3-4 septate when mature, constricted at the septa, honey-yellow, 50-55 x 10-12 microns.

On *Scirpus* sp., Lake Okoboji, July, 1957, L. H. Tiffany.

This report is the first report of this species from America.

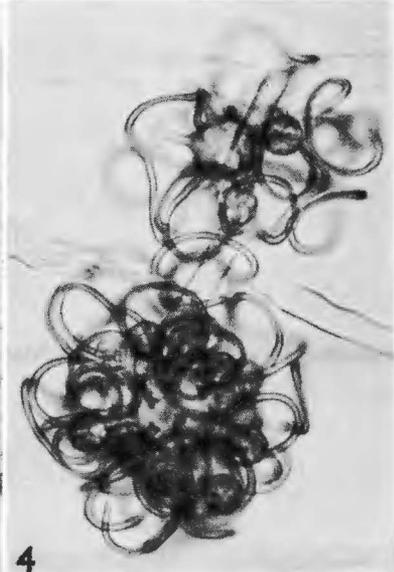
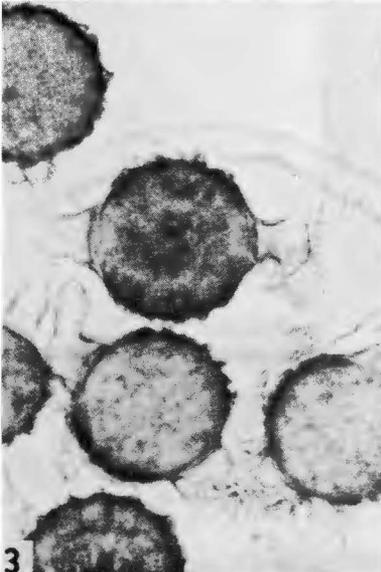
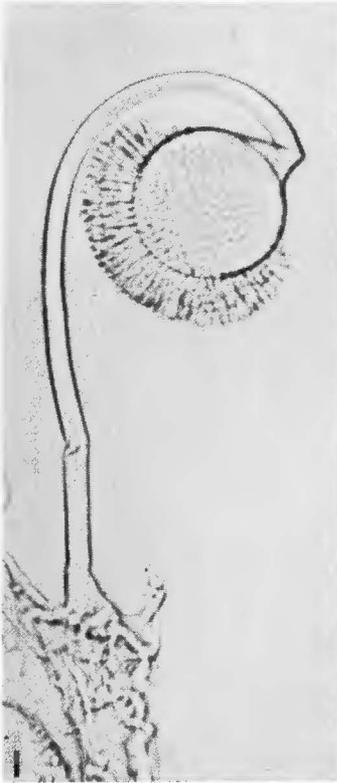
Hyalothyridium calamagrostidis Greene (6)

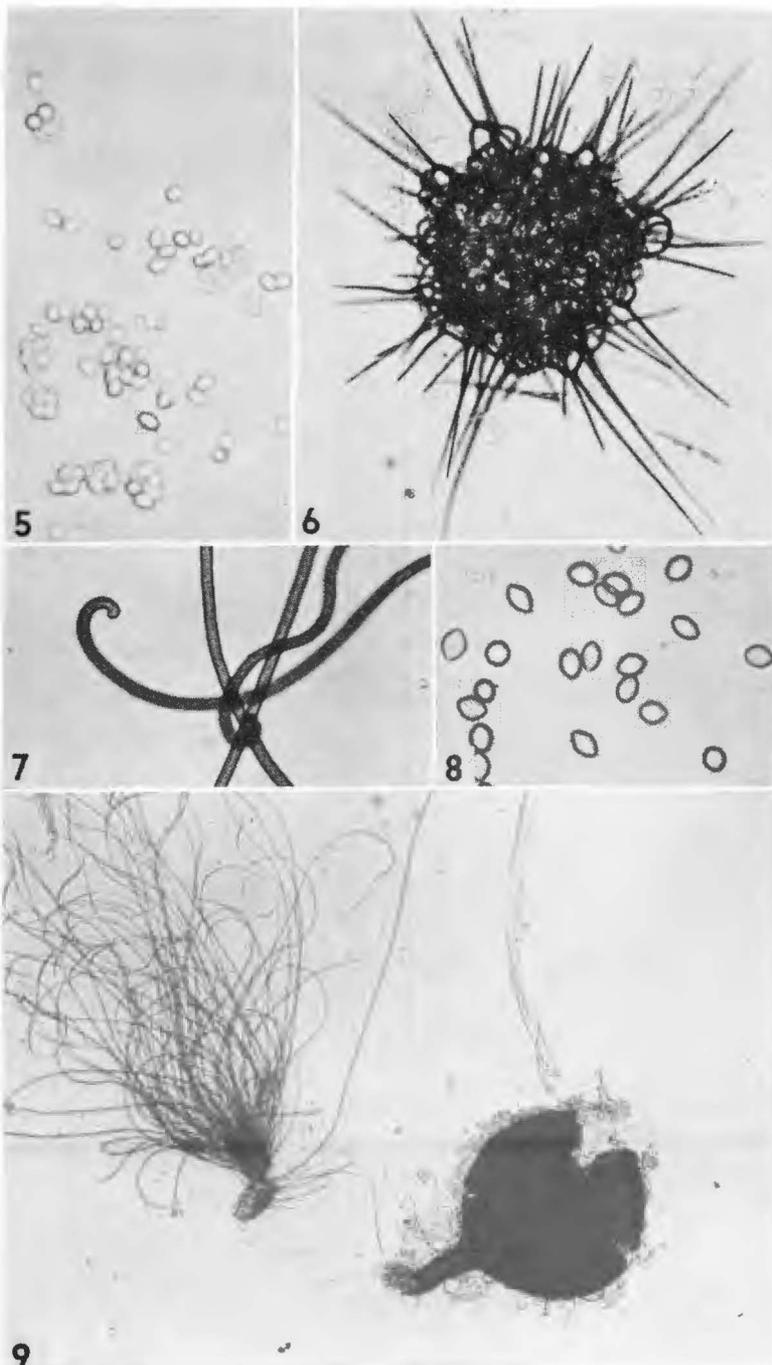
Spots amphigenous, ellipsoid or fusiform, sometimes confluent, paler above with a narrow, dark purple border; 0.25-1.5 cm long; pycnidia (Fig. 15) rudimentary, subepidermal, scattered, deeply sunken in the host tissues, amphigenous, globose, erumpent, ostiolate, 110-135 microns in diameter; wall composed of pale brown, flattened, compressed cells, almost concolorous with surrounding host cells;

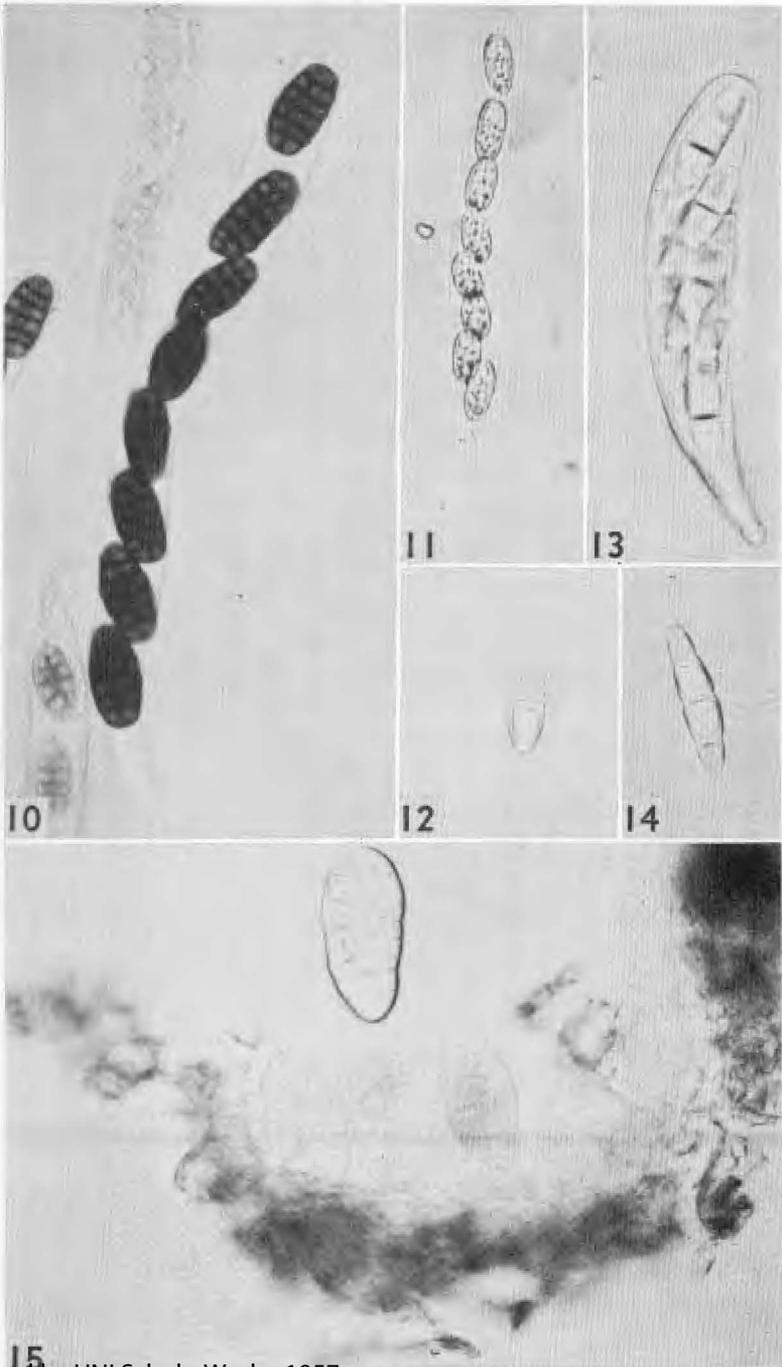
Explanation of Plates

- Figure 1. *Syncephalis reflexa*, young sporophore.
 Figure 2. *Syncephalis reflexa*, mature sporophore on sporangiophore of *Rhizopus*.
 Figure 3. *Cokeromyces recurvatus*, zygospores.
 Figure 4. *Cokeromyces recurvatus*, heads bearing sporangioles.
 Figure 5. *Byssosclamyces nivea*, asci and ascospores.
 Figure 6. *Myxotrichum spinosum*, cleistothecium.
 Figure 7. *Lophotrichus ampullus*, tips of perithecial hairs.
 Figure 8. *Lophotrichus ampullus*, ascospores.
 Figure 9. *Lophotrichus ampullus*, perithecium with head of perithecial hairs broken off.
 Figure 10. *Fenestella vestita*, asci and ascospores.
 Figure 11. *Diaporthe taleola*, ascus and ascospores, immature.
 Figure 12. *Diaporthe taleola*, ascospore.
 Figure 13. *Leptosphaeria gigaspora*, ascus and ascospores.
 Figure 14. *Leptosphaeria gigaspora*, ascospore.
 Figure 15. *Hyalothyridium calamagrostis*, section of pycnidium with conidia.

conidia hyaline, muriform, many celled, variable, narrowly to broadly ellipsoid, ovate or obovate, 20-45 x 16-23 microns, usually with a pointed hyaline apiculum, 3-13 (mostly 4 to 6) x 1.5-2.0 microns.







On *Calamagrostis canadensis* (Michx.) Beauv. Lake Okoboji, August 5, 1956. L. H. Tiffany.

Wisconsin is the only other place from which this species has been collected.

Crocicreas atroviridis (Berk. & Br.) v. Höhn. (4)

Pycnidia superficial, globose, somewhat indented above, late becoming saucer-shaped, thick-walled loosely associated cells into a dark outer and hyaline inner membrane with fasciculate hyphae extending above into hyaline points. Conidia cylindrical, hyaline with truncate or tapering ends, 12 x 2 microns. Conidiophores thread-like, clothing the entire inner wall of the pycnidium.

On dead grass culms, Ames, 1957, J. C. Gilman.

This is the first report of this fungus from North America. The genus was first considered to be a member of the Sphaerioidaceae but was transferred to the Excipulaceae by von Höhnel.

Septoria caraganae (Jacz.) Died. (3)

On leaves on indefinite, yellow to brown spots. Pycnidia hypophyllous, covered erumpent by an irregular tear in the epidermis, not extruded, rather dark brown, flat spherical to lens-shaped, 200-500 microns in diameter. Conidia cylindrical-clavate, straight or somewhat curved, truncate at both ends or tapering toward the base, with 1-3 septa and many guttulae, 32-35 x 2.5-3.5 microns.

On living leaves of *Caragana arborescens*, Ames, 1956, J. C. Gilman.

The fungus causes defoliation of its host in mid- to late summer. This report is the first from the United States.

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