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Notes on Iowa Fungi. XIV

G. W. MARTIN¹

Abstract. Comments are made on the five species of *Morchella* native to Iowa, with particular reference to *M. deliciosa*. Other fungi are briefly noted.

MORCHELLA DELICIOSA Fries (Figure 1)

Of the five species of *Morchella* reported from Iowa, *M. esculenta* Fries is widely distributed and common and *M. semilibera* DC. ex Fries only slightly less so. Both species were discussed and illustrated by Gilman (1942), the latter as *M. hybrida* (Sow.) Pers., the name used in Seaver's monograph. Gilman mentioned *M. crassipes* Fries, *M. conica* Pers. ex Fries, and *M. deliciosa* Fries as also occurring in Iowa. Seaver (1910) had previously reported all five for the State. He merely listed *M. conica*, referring back to a still earlier paper (1904). I am sure that the fungus illustrated is a form of *M. esculenta*.

I have never been convinced that the Iowa specimens I have seen which were referred to *M. conica* were anything more than variants of the common *M. esculenta* which happened to be more pointed at the tip than usual, more especially as such forms are usually to be found in any collection of *M. esculenta*. Such appear to be quite different from the specimens of *M. conica* I collected many years ago in France, determined as such by L. Dufour, an experienced French collector. *M. crassipes* is quite distinct, recognizable at sight by its large size, very large and often swollen stem and the thin dissepiments between the deep hymenial cups on the pileus. I have never collected it myself, but nearly every spring it is brought in from the English River bottoms about 15 miles south of Iowa City, where it seems to be common.

There has been some suggestion that *M. deliciosa* is no more than a small form of *M. esculenta*. It is interesting to note that while Fries (1822), in the work which is the starting point for the nomenclature of these forms, regarded *conica* as a variety of *M. esculenta*, he recognized *M. deliciosa* as distinct, with the comment "Praecedenti sapidior, variet. δ " [i.e., *M. esculenta* δ *conica*] "valde affinis at non facile subjugenda ob characteres satis acutos."

Nearly every spring for a number of years I have collected *M. deliciosa* in an area at the northern end of Iowa City under a couple of old apple trees, where it occurs in company with *M. semilibera*, *Verpa conica* Fries and *Monilinia fructicola* (Wint.) Honey. It is

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always constant, differing from *M. esculenta* in its consistently small size, in its slightly smaller spores, and in its earlier appearance. It usually appears about the first of May, a week or ten days before the commoner *M. esculenta*. I have never collected *M. esculenta* in this spot, although it occurs regularly in another spot approximately 300 yards distant. Since the place where it grows is now being "improved" by being cut into building lots, I shall not be able to collect it again, but it must be present, although overlooked, elsewhere in eastern Iowa.

DALEOMYCES PHILLIPSII (Masse) Seaver (Figure 2)

A very large collection of this handsome and striking helvellaceous

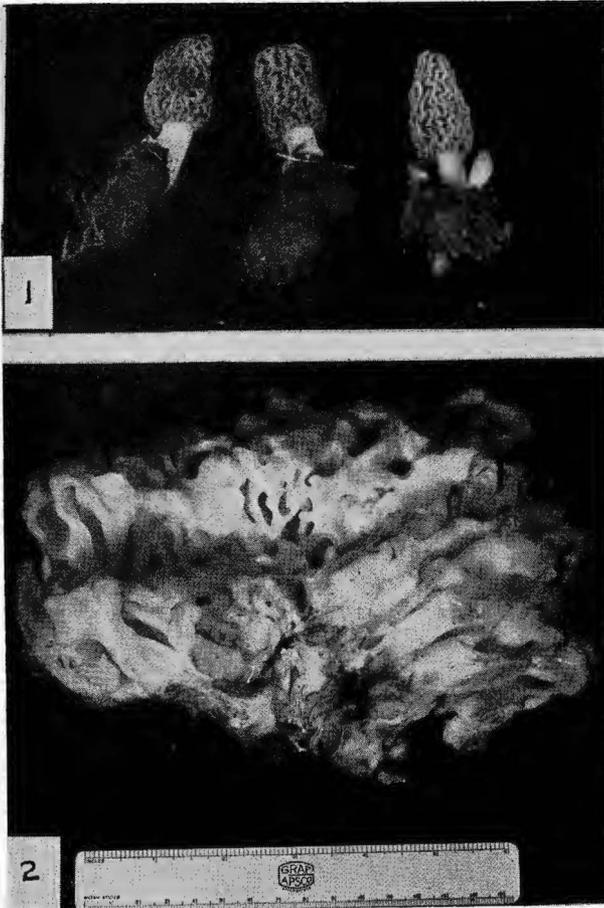


Figure 1. *Morchella deliciosa*, $\times 2/3$.

Figure 2. *Daleomyces Phillipsii*, $\times 1/3$. Note hymenium-lined chambers in upper portion where surface has been broken away.

fungus was brought into the laboratory June 1, 1954 by Messrs. B. Hamlong and J. Swartzendruber, who had collected it in Sharon Township in southern Johnson County, and reported it as abundant in a cutover area which had recently been burned. The specimen photographed was 19 cm. in diameter. Others had been larger, but the sporocarps are extremely fragile and they had been broken.

Seaver (1928) erected the genus *Durandiomyces* for it, but later (Supp. 337, 1942) recognized it as identical with *Daleomyces Gardneri* Setchell 1924, and made the combination listed above, based on *Gyromitra Phillipsii* Masee 1895.

The species has been regarded as a variety of *Peziza proteana* (Boud.) Seaver, but Seaver believed it to be distinct, and certainly there is nothing about the appearance of the fresh fungus to suggest that it should be included in *Peziza*. The upper part of the figure, showing the interior, helps to explain why Setchell referred his genus to the Tuberales. Seaver gave the distribution as "New York to Washington and Oregon; also in Europe." So far as I am aware, it has not previously been reported from Iowa.

MUCRONELLA FLAVA *Corner*

This species was described (Corner, 1953) from a single collection (GWM 6414) made in Iowa City in 1950 in swampy woodland at the north end of the city on the left bank of the Iowa River. It occurred on a large hewn oak beam which had obviously been deposited by a flood. Although I watched for it, I did not see it again until July 8, 1958, when a fairly ample growth (GWM 8968) was found on a fallen and badly decayed trunk of what was probably soft maple, in the swampy area at the north end of the City Park, almost exactly across the river from the place where the type collection was gathered.

The original description, written on the basis of dried material, gave the color as waxy yellow, which is good. The second collection, matched with Ridgway while fresh, was Apricot Yellow.

These remain the only collections of this species. While it can scarcely be called conspicuous, it is certainly less inconspicuous than many other fungi which are collected frequently.

SPHAEROSPORIUM LIGNATILE *Schw. (Figure 4)*

This striking species is rather common in eastern Iowa, forming brilliant golden masses of spores on sodden wood in river bottoms. Originally described by Schweinitz (1832) from Pennsylvania, it was believed by Höhnel (1913) to be identical with *Coccosporium aurantiaca* Wallr. (1833). Höhnel dated Schweinitz's paper 1834,

which was the date of the completed volume in which it appeared but not of the paper itself, and on that basis decided that Wallroth's name had priority. His decision has generally been followed in the literature. Damon and Downing (1954) traced the rather complicated history of these two names and decided that they probably refer to quite different species. Their Figure 2B, based on a photograph, shows the characteristic origin of the spores in branching, monilioid chains. The accompanying drawing, Figure 4a, from a local collection, is essentially similar.

RHOPALOMYCES ELEGANS Corda (Figure 3)

This cosmopolitan fungus appears to be fairly common in Iowa and Illinois. I have never detected it in the field, but it has appeared not infrequently on dead wood collected in the vicinity of Iowa City and Urbana and put in moist chambers. Originally described from material collected in a Prague greenhouse (Corda, 1839), it is widely distributed in Europe and the United States and has been reported from Indonesia. Corda's original illustration, familiar because of its reproduction in Engler and Prantl (1900) and Clements and Shear (1931), is misleading in that it depicts the spores as fusiform (although they are described as ovate) and fails to illustrate the characteristic rhizoidal base. Corda assigned his genus to the "Schimmelpilze" (Hyphomycetes) and his disposition has been followed by most authors since then. Saccardo (1886, 1892, 1895) assigned the genus to the Mucedinaceae despite the very dark spores. In this he was followed by Lindau in the Engler and Prantl treatment and by Clements and Shear. Van Tieghem (1886) seems to have been the first to suggest that it may be related to the Mucorales. Thaxter (1891) was inclined to favor this suggestion. Boedijn (1927) found the species in Java on decaying coffee-beans and wrote a careful redescription of it, illustrating the rhizoidal base and showing the heads as faintly areolate, rather than strongly areolate as Corda illustrated them, and the spores as definitely long-ovate and multinucleate. He decided that the spores were morphologically merosporangia, essentially of the *Syncephalis*-type, which never formed sporangiospores but functioned individually as conidia. Barnett (1955) listed *Rhopalomyces* as a phycomycete between *Helicocephalum* and *Coemansia*. Very recently, Boedijn (1959) proposed the addition to the Mucorales of the Family Helicocephalidaceae, including in it *Rhopalomyces* and *Helicocephalum*. I have already reported the latter genus from Iowa (1937, 1938). I am convinced that both genera should be included in the Mucorales. Whether, in view of the marked difference in the way the spores are borne, they should be included in the same family is less certain.

In the French reference cited, van Tieghem is said to have cul-

tured *Rhopalomyces elegans* on dung decoction. Boedijn said that one species of *Helicocephalum* is known to grow on the eggs of nematodes and suggested that *Rhopalomyces* might grow on the same substratum. To test this, I secured a profuse development of nematodes by placing a piece of wood on which the *Rhopalomyces* was growing on an agar plate and inoculated it with spores of the fungus. I had previously tried many times to grow it on a variety of media with complete lack of success, and nothing came of the attempt mentioned. Both Thaxter and Boedijn were equally unsuccessful. Nevertheless, the marked resemblance of the rooted base to that of

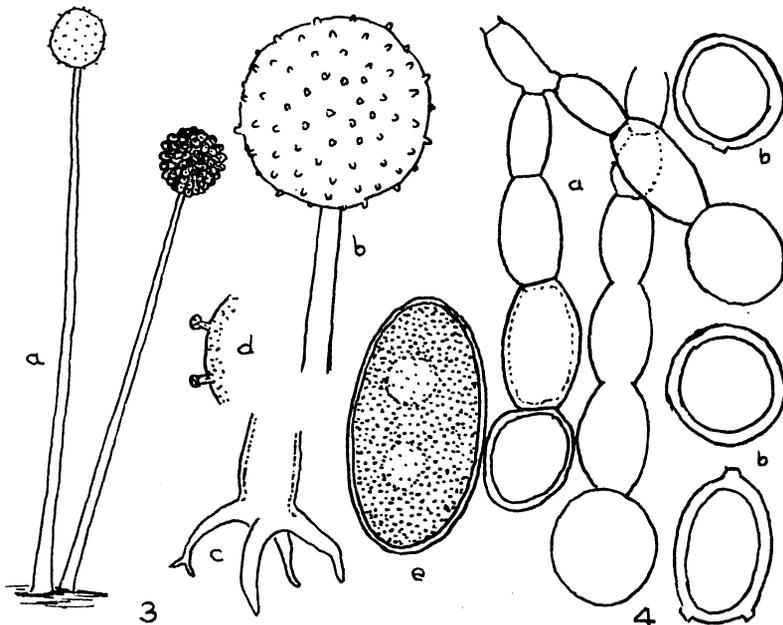


Figure 3. *Rhopalomyces elegans* Corda. a. Two sporophores arising from wood, one with spores fallen, $\times 40$. b. Head without spores, $\times 400$. c. Base of sporophore, dissected out of wood $\times 400$. d. Optical section at surface of another head, showing two young spores arising from peripheral cytoplasm, without any indication of cleavage. e. Single spore, $\times 800$.

Figure 4. *Sphaerosporium lignatile*. a. Chains of immature spores, the branched one showing upper cell of basal sporophore, $\times 400$. b. Three mature spores, the bottom one showing evidence of formation at origin of two branches.

Syncephalis and similar genera strongly suggests that both *Rhopalomyces* and *Helicocephalum* are parasitizing something immersed in the substratum, whether it be another fungus, nematode eggs or something else. It is extremely difficult to dissect out the basal portion from the wood in which it is imbedded, and it is quite possible that remnants of a host organism as well as part of the rhizoidal system may be lost in the process.

As noted, Corda's drawing showed marked areolae on the fertile

heads, as though the underlying protoplasm had been divided into cells before spore formation. Boedijn referred to the areolae as indistinct and so showed them in his Figure 2, but did say that the spicule ("sterigma") which bears the spore is sunken, which was also suggested by Corda's drawing. I have been unable to detect either areolae or depressions under the spicules in the numerous heads I have examined. It is worthy of note that Thaxter showed neither in his careful drawings of the obviously closely related *R. strangulatus*. It is possible that I am dealing with an unrecognized species, but on the basis of present information, I think it unlikely.

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