

## CHAPTER 49

### EXCLUDED AND SYNONYMOUS GENERA

Various genera that have proven to be synonymous with recognized taxa at this level, or are more properly disposed of elsewhere, have been assigned to the Saprolegniaceae. These groups are treated in this section.

*Achlyopsis* de Wildeman  
Ann. Soc. Belge Microscop. (Mém.) 20:123. 1896

Although de Wildeman (*loc. cit.*) saw similarities between *Achlyopsis*, *Achlya*, and *Dictyuchus*, he provisionally assigned his genus to the peronosporaceous fungi. As no sporangia were described for the single species, *A. entospora*, and the figures of the oogonia and oospores confirm that the fungus was not saprolegniaceous, the genus is excluded.

Largely emphasizing the characteristic profuse, enveloping antheridial branches of *Plectospora* species, Drechsler (1927) compared his specimens with de Wildeman's account of *Achlyopsis*. The "thalles coralloides" of *A. entospora*, Drechsler concluded, resembled the empty sporangial apparatus in *P. myriandra*. Inasmuch as de Wildeman described from the same collection -- and, evidently, in the same material (without the benefit of isolation) -- two species of *Pythium* as well as *A. entospora*, no further comparisons with *P. myriandra* need be made. The resemblance of *A. entospora* to *P. myriandra* (as Drechsler described this species) is too superficial to be taken seriously.

*Althornia* Jones and Alderman  
Nova Hedwigia 21:381. 1971

This is a monotypic genus, the species *Althornia crouchii* producing dimorphic planonts. Spore flagellation suggests a position in the Saprolegniales, but there is no morphological evidence on which to assign the taxon to the Saprolegniaceae. Alderman (1976), and E. B. G. Jones and Alderman (1971) treat the taxonomy and morphology of *A. crouchii*; Alderman and Jones (1971), and E. B. G. Jones *et al.* (1971) give an account of some physiological aspects of the species.

Although the genus appears to be a valid one, it is excluded from the Saprolegniaceae.

*Aphanomyopsis* Scherffel  
Arch. Protistenk. 52:11. 1925

Scherffel (*loc. cit.*) assigned this genus to the Saprolegniaceae, although he recognized its apparent affinity to *Ectrogella*. *Aphanomyopsis* was placed in the Lagenidiaceae by Tokunaga (1934), but Coker and Matthews (1937) and Sparrow (1960)

considered it to be a valid member of the Ectrogellaceae. Vishniac (1958) believed that the genus belonged in the Haliphthoraceae.

On the basis of two species collected in the South Pacific region, Karling (1968b) emended the generic concept and reassigned *Aphanomyopsis* to the Saprolegniaceae. The resting spores of the specimens described by Karling are quite unlike the oospores of saprolegniaceous fungi. If *Aphanomyopsis* is admitted to the family, both *Leptolegniella* Huneycutt *ex* Dick and *Brevilegniella* Dick are equally admissible by reason of the asexual characteristics of their representatives.

Dick (1971a) placed *Aphanomyopsis* in his new family Leptolegniellaceae. This is a likely repository for the genus, although there is much to be said in favor of retaining it in the Ectrogellaceae. *Aphanomyopsis* is in any case not properly accommodated in the Saprolegniaceae.

*Aplanes* de Bary  
Bot. Zeitung (Berlin) 46:613. 1888

De Bary first mentioned *Aplanes* as a new genus in his 1884 book (*see also*, de Bary, 1887), but the brief, formal description of the taxon did not appear until 1888. The genus was based on specimens lacking motile spores (de Bary, 1888) but soon came to be associated with individuals in which the spores germinated *in situ* in the sporangium. De Bary also emphasized that spores (gonidia) were rare, and either developed in single rows in dwarf plants, or directly in the oospore itself at germination. In any case, the spores did not swim, but germinated in place. There is no doubt that the concept of de Bary's genus had been encountered earlier by Reinsch (1878) in a fungus he named *Achlya braunii*. It should be recognized that Reinsch's species produced dictyuchoid sporangia.

It is true that sporangia are rare in species that have been assigned to *Aplanes* but they are sparingly produced in very young cultures propagated in acidified water. All of the species are now known to have primary sporangia characteristic of either *Achlya* or *Saprolegnia*, and are therefore assigned to these genera. The genus accordingly has no separate status. (*See Achlya androgyna* and *Saprolegnia turfosa*.)

In her unpublished thesis Horton (1921) described but did not specifically name an isolate believed to be a member of *Aplanes*. The majority of the sporangia produced spores that germinated *in situ* (aplanoid), but Horton saw at least one achlyoid sporangium as well. The sexual apparatus consisted of spherical, lateral oogonia and androgynous antheridial branches. There were numerous oospores, but no mention was made of this characteristic in the description of the "type".

Wolf (1944:38) published a second description of Horton's *Aplanes* sp., but his account was for the most part taken directly from the original report. According to Wolf *Aplanes* sp. indeed belonged to that genus, and since it did not resemble *Aplanes* (= *Saprolegnia*) *turfosa*, *Aplanes braunii* var. *mindenii* (= *Achlya androgyna*), or *Aplanes treleaseanus* (= *Achlya androgyna*), he thought it should be described as new.

Because *Aplanes* sp. obviously had some achlyoid sporangia, an assignment to *Achlya* would be necessary. However, Horton's fungus cannot be identified or assigned generically either from the description she provided or that given by Wolf (the two do not agree in all respects, Wolf's giving more descriptive characters than Horton's). There are no illustrations of the fungus in the one thesis copy in existence.

Sörgel (1941) reported the collection in the West Indies of *Aplanes* species, but did not name the specimens. There are no published descriptions or illustrations. The description of *Aplanes* sp. (from Nepal) by S. C. Singh (1968a:12) is based entirely on an asexual plant with spores germinating *in situ*. The fungus cannot be properly assigned elsewhere in the family.

*Archilegnia* Apinis  
Acta Horti Bot. Univ. Latv. 8:103. 1933

The genus *Archilegnia* must be rejected on the ground that it was created to include *Saprolegnia latvica* Apinis a species based on obviously infected material. According to Apinis (1929a, b), fertilization in *S. latvica* was effected by motile sperm cells, much as Pringsheim (1882, 1883a, b) earlier had described for some *Achlyas*. Sparrow (1960:796 n.) postulated that the fungus which Apinis collected was invaded by a persisting monad.

At the time he erected the genus *Archilegnia*, Apinis transferred (1933a, b) *Saprolegnia latvica* to the genus as *Archilegnia latvica*. In 1950, D. P. Rogers pointed out that *Archilegnia* was not validly published, having appeared in print in 1935 without an accompanying Latin diagnosis. The publication in which *Archilegnia* was described did not appear until 1935, but the volume of the journal clearly was designated for 1933. It was A. Lund (1934) who introduced into the literature the incorrect spelling of the name *latviaca* that has appeared from time to time in subsequent literature [the name also is incorrect in Dick's (1973) checklist of taxa].

Seymour (1970) placed *Saprolegnia latvica* in the category of doubtful species, but did not formally reject *Archilegnia*. Curiously, neither A. Lund (1934:16, fig. 5) nor Stpiczyńska (1963:423, fig. 1), who reported collecting *S. latvica*, saw motile "sperm" (the infecting fungus) associated with sexual reproduction. This being the case it is quite possible that they had in fact collected some other species. The report of the species by R. E. Roberts (1963) from England is unaccompanied by a description. Figure 3 in Richter's paper (1937:241) illustrates an oogonium that more nearly resembles *S. latvica sensu* A. Lund (1934) than *S. floccosa* (as Richter identified his collection).

*Archilegnia* cannot be retained, and the species on which it was based is also excluded.

*Astreptonema* Hauptfleisch  
Ber. Deutsch. Bot. Ges. 13:83. 1895

Assigned to the Saprolegniaceae by Hauptfleisch, this genus and its single species, *longispora*, was removed by Thaxter (1920). Quite properly, Lichtwardt (1973) included *Astreptonema* in the Trichomycetes.

*Branchiomyces* Plehn  
Centralbl. Bakteriolog., Abth. 1 62:132. 1912

Members of *Branchiomyces* (Plehn, *loc. cit.*; Grimaldi *et al.*, 1973; G. C. Srivastava and R. C. Srivastava, 1976c) are not saprolegniaceous, and the genus therefore is excluded from the family. Species of the genus are known as parasites of freshwater fish. Superficially *Branchiomyces* sp. (Grimaldi *et al.*, 1973: text figs. 1, 2) resembles a *Brevilegniella* in its sporangial characteristics.

*Brevilegniella* Dick  
Pap. Michigan Acad. Sci., Arts, Ltrs. 46:195. 1961

According to Dick (1961), the species on which *Brevilegniella* was established, *B. keratinophila*, is the same as the *Brevilegnia* sp. reported by Sparrow (1957) from England. Dick questioned at the time he described the genus whether it should be retained in the Saprolegniaceae, and provisionally assigned it (and *Leptolegniella*) to Vishniac's (1958) Haliphthoraceae. The genus and species have since been placed by Dick (1971a) in the Leptolegniellaceae. Sparrow and Dogma (1973) reported collecting *B. keratinophila* (as *keratinophilia*) in the Dominican Republic.

*Cladolegnia* Johannes  
Feddes Repert. Spec. Nov. Regni Veg. p. 211. 1955

Johannes (*loc. cit.*) removed from *Isoachlya* (Kauffman), 1921) those species producing 1-3 oospores, and transferred them as new combinations to the genus *Cladolegnia*. He specifically excluded from *Cladolegnia* these species: *I. monilifera* (de Bary) Kauffman (1921), *I. anisospora* var. *anisospora* (de Bary) Coker (*in*, Coker and Matthews, 1937), *I. anisospora* var. *indica* R. K. Saksena and Bhargava (1944), *I. parasitica* (Coker) Nagai (1931), and *I. toruloides* Kauffman and Coker (*in*, Kauffman, 1921). Höhnk (1962) erred in using the name *Cladolegnia toruloides* (Kauffman *et* Coker) Johannes in identifying an isolate from Madeira, since Johannes did not include that species in his genus. It is apparent that Johannes saw in *Cladolegnia* a link between the genus *Saprolegnia* with species having many oospores and representatives of *Leptolegnia* with only a single oospore in each oogonium.

The species of *Cladolegnia* have been disposed of properly by Seymour (1970), and there certainly is no more reason to recognize Johannes' genus than there is for resurrecting Kauffman's *Isoachlya*. *Cladolegnia terrestris* (Richter) Johannes must be excluded from synonymy (Seymour, 1970) with *Saprolegnia richteri* Richter *ex* Seymour.

The name with which *S. richteri* was first established was *Isoachlya terrestris* Richter (1937). When Johannes (*loc. cit.*) transferred this species to *Cladolegnia*, he did so without validating the new combination with a Latin diagnosis, and thereby perpetuating as illegitimate the name of Richter's species. An illegitimate name cannot properly be considered a synonym.

*Cystosiphon* Roze and Cornu  
Ann. Sci. Nat. Bot. 5<sup>e</sup> sér. 11:84. 1869

The single species assigned to this genus, *Cystosiphon pythioides*, is a *Pythium*, and was so recognized by Lindstedt (1872).

*Diplanes* Leitgeb  
Jahrb. Wiss. Bot. 7:374. 1869-70

This genus is synonymous with *Saprolegnia*. The name first appeared in Leitgeb's 1868 paper, and although a brief description accompanied the generic name, no species were mentioned. Accordingly, only Leitgeb's later paper of 1869-70 properly established the genus.

*Hamidia* Chaudhuri  
Proc. Indian Acad. Sci. (Sect. B) 15:227. 1942

Although Sparrow (1960) retained *Hamidia* as an imperfectly defined genus, we feel it must be excluded since the species on which it is based has almost nothing in the way of saprolegniaceous characteristics. Chaudhuri (*loc. cit.*) wrote that the single species, *H. indica*, produced septate hyphae, oogonial bodies each with a single oospore (that could be discharged from the "oogonium"), no antheridia, and swarm spores that were nonflagellate. Some of the illustrations in Chaudhuri's account (1942: pl. 1,) figs. 3, 4, 11, 12) suggest an *Endogone*-like organism, while others give the impression of hyphal swellings invaded by some holocarpic, chytridiaceous fungus.

The later description of *Hamidia indica* by Chaudhuri *et al.* (1947:61, figs. 31, 32) does not clarify the status of the genus or its species. Their illustrations show oogonium-like structures, and although the authors report that there were no antheridial branches, the figures (31.3, 32.14, 15) clearly show such filaments. Of the taxon, Chaudhuri *et al.* (1947:61) noted that the "...lateral spore discharge tube and septate hyphae are Pythiaceus characters..."

*Isoachlya* Kauffman  
Amer. J. Bot. 8:231. 1921

Prior to Seymour's study of *Saprolegnia*, *Isoachlya* was recognized as a valid genus. Seymour distributed the species into *Saprolegnia*, where they now reside. In 1965,

O'Sullivan removed only one species -- *I. monilifera* -- from Kauffman's genus, assigning it to *Saprolegnia*. Cejp (1959a:190) seems to have listed *Saprolegnia*, *Pythiopsis*, and *Cladolegnia* as synonyms of *Isoachlya*, yet in the same publication recognized both *Saprolegnia* and *Pythiopsis* as valid genera. In 1954, H. Meier and Webster suggested that *Saprolegnia* and *Isoachlya* were closely related groups because the spore cyst structure of isolates believed to represent these two genera was similar.

*Jaraia* Nĕmec

Bull. Int. Acad. Sci. de l'Empereur Francois Joseph,  
Cl. Sci. Math. Nat. et Méd. 18:43. 1913

Only a single species has been described, *Jaraia salicis*, collected by Nĕmec from enlargements on living roots of *Salix* (species?). The figures by Nĕmec (*loc. cit.*) and Cejp (1959a: figs. 15, 16), and the descriptions as well, convey the impression that the species is a holocarpic, chytridiaceous fungus (or perhaps a mixture of organisms). Wolf (1944) pointed out that since fertilization was alleged to precede oospore formation, the species could be excluded from the Saprolegniaceae on that basis.

*Leptolegniella* Huneycutt *ex* Dick

Trans. Brit. Mycol. Soc. 57:421. 1971

This genus, first described in 1952 by Huneycutt, became the type of Dick's (*loc. cit.*) Leptolegniellaceae. Huneycutt assigned *Leptolegniella* to the Saprolegniaceae, but did not validate it with the required Latin diagnosis. On the basis largely of oospore (resting spore) structure of the species, Dick (1969b) suggested that the genus should be removed from the family in which it had first been placed. The disposition of the genus and two of its species, *Leptolegniella keratinophila* (*keratinophilum* was the form used by Huneycutt) and *L. exoosporus* W. D. Kane (1966), executed by Dick (*loc. cit.*) is the correct one, and is followed here. The genus, of course, is valid. *Leptolegniella piligena* Ookubo and Kobayasi (1955) is a species of *Leptolegnia*, and is so treated.

Scott *et al.* (1963) collected specimens of *Leptolegniella keratinophila* in Virginia, and provided a detailed account of its structure. Upon germination, the resting spores produced a mycelium that formed only more resting spores, and did not develop sporangia.

In view of the widespread distribution of representatives of *Leptolegniella*, and the fact that Dick's disposition of the genus is not fully adopted (Karling, 1976, reported Huneycutt's species as a *Leptolegnia*), we are including a list of records of collection.

*Leptolegniella keratinophilum* -- AFRICA: W. D. Kane (1966); Karling (1976).  
BRITISH ISLES: Sparrow (1957). EUROPE: W. D. Kane (1966). ICELAND: Howard and Johnson (1969; also report *Leptolegniella* sp.); T. W. Johnson (1968, 1973b). NEW ZEALAND: Karling (1966f). OCEANIA: Karling (1968b). PHILIPPINES: Dogma (1975). SOUTH AMERICA: Milanez (1970:31). UNITED STATES: Huneycutt (1952:110, pl. 15);

W. D. Kane (1966: figs. 25-29); Karling (1977); Rooney and McKnight (1972; also report *Leptolegniella* sp. on twigs of *Betula*); Scott (1966b); Scott *et al.* (1963). WEST INDIES: Scott (1960a).

*Leptolegniella exosporus* -- AFRICA: W. D. Kane (1966). EUROPE: W. D. Kane (1966). NEW ZEALAND: Karling (1966f). OCEANIA: Karling (1968). SOUTH AMERICA: Milanez (1970:31; a form lacking an antheridial apparatus). SEYCHELLES ISLANDS: Sparrow (1975:48; as *L. exosporus*). UNITED STATES: W. D. Kane (1966:909, figs. 1-24).

*Mycocoelium* Kützing  
Phycologia Generalis, p. 158. 1843

There are no illustrations of *Mycocoelium rivulare*, the only species in this ill-defined genus. Neither the description provided by Kützing in 1843 nor that of 1845 are referable to a plant identifiable as a member of the Saprolegniaceae; the thallus of *M. rivulare* was described as saccate, which is hardly saprolegniaceous.

*Ostracoblabe* Bornet and Flahault  
Bull. Soc. Bot. France 36:CLXXI *et sqq.* 1889

Although the authors of the single species, *Ostracoblabe implexa*, held that the mycelium was saprolegniaceous, there is nothing convincing to that effect in the descriptive or illustrative matter. The position of the genus remains unknown (Alderman, 1976). In their monograph on marine fungi T. W. Johnson and Sparrow (1961:555) stated that the organism Bornet and Flahault (*loc. cit.*) described might be a portion (or portions) of a lichen, as Bornet (1891) believed; Alderman and Jones (1971) found no support for this view.

A critical account of *Ostracoblabe implexa* (as the cause of a shell disease of *Ostrea edulis* L. and *Crassostrea angulata* Link. in European waters) was published by Alderman (1976:227-233, figs. 9.9-9.24).

*Scoliolegnia* Dick  
J. Linn. Soc. Bot. 62:255. 1969

Synonymous with *Saprolegnia* Nees von Esenbeck.

*Synchaetophagus* Apstein  
Wiss. Meeresuntersuch., Abt. Kiel 12:163.1911

*Synchaetophagus balticus*, the type of this monotypic genus, was described as having a thallus of branched, nonseptate mycelium that converted entirely into a sporangium. Whether the spores were motile is not stated in Apstein's account. Indeed,

there is nothing in either the descriptive or illustrative matter of the taxon (Apstein, 1911, p. 163, figs. 1-8) to suggest an affinity of the genus with the Saprolegniaceae.

Valkanov (1932:489, 490) proposed the creation of a special group to accommodate Apstein's genus in the order Saprolegniales. Vishniac (1958) thought it possible to assign *Synchaetophagus* to the Haliphthoraceae, but Dick (1973) excluded it from the order itself. In this we concur, since the organism is so sketchily known. Doubts about the validity of Apstein's species were expressed by T. W. Johnson and Sparrow (1961:362, 363, 363 n.).