A Revision of the Genus *Olpitrichum* ATK.

**Abstract**

A revision of the genus *Olpitrichum* ATK. was undertaken, revealing three species: *O. macrosporum* (Farlow ex Sacc.) Sumstine, *O. patulum* (Sacc. et Berl.) Hol.-Jech. and *O. tenellum* (Berk. et Curt.) Hol.-Jech. *O. macrosporum* and *O. tenellum* occur on decayed cotton bolls, *O. patulum* on dead rotten wood and bark. Aspergilliform phialosporous state has been found in *O. macrosporum* and *O. patulum*.

*Examining lignicolous *Hyphomycetes* placed in the genus *Oidium* Link ex Fr. emend. Linder, by Linder (1942), special attention was paid to *Oidium macrosporum* (Farlow ex Sacc.) Linder and *O. tenellum* (Berk. et Curt.) Linder. A study of the herbarium materials from FH, NY, CUP, DAOM, K, BM, PAD demonstrated that these species do not belong to the genus *Oidium* Link ex Fr. emend. Linder but must be transferred to the genus *Olpitrichum* ATK. Two species, *Olpitrichum macrosporum* (Farl. ex Sacc.) Sumstine and *O. patulum* (Sacc. et Berl.) Hol.-Jech., were found to have been erroneously referred to as *Olpitrichum macrosporum* in herbaria.

*Olpitrichum macrosporum* was first collected by Farlow, who named it *Rhinotrichum macrosporum*. Farlow used this name when dispatching material of the species to various herbaria. He also sent a piece of the material to Saccardo to make sure that his taxon did represent a new species. Saccardo proposed the name *Rhinotrichum farlowianum* for this species but failed to publish it validly; Farlow's collection is merely deposited in Saccardo's Herbarium (PAD) under this name. Farlow told Saccardo in a letter (Cambridge, 30. Dec. [? 1879]), that the fungus had been distributed by him under the name *R. macrosporum*; to prevent confusion he recommended preserving the name *R. macrosporum* for the species concerned. For that reason Saccardo (1880: 148) published Farlow's species as *Rhinotrichum macrosporum* Farlow. Farlow's collection deposited in Saccardo's Herbarium (PAD) is the type of the species; it bears a small label with a note "no. 2. *Rhinotrichum?*" written by Farlow. The note on the label corresponds to the text of Farlow's letter. In the description, Saccardo (1880) gave the sub-

strate as "in fragmentis ligneis putridis" and the locality as Cambridge (Mass.). However, an examination of the sample demonstrated that the substrate was a piece of a very rotten tissue of cotton boll namely from an occurrence of *Colletotrichum* sp.. It has been found in almost all specimens of *Olpitrichum macrosporum* on cotton bolls. It is possible that the specimen collected by W. G. Farlow and preserved in NY labelled only "on cotton" belongs to the authentic material.

Fourteen years later Atkinson (1894) studied cotton boll decay caused by fungi in moist weather. In addition to the common species *Rhinotrichum macrosporum* Farlow ex Sacc. and *R. tenellum* Berk. et Curt., he collected a fungus which apparently differed by the shape and arrangement of the sporogenous denticles ("basidia"). Atkinson proposed a new genus *Olpitrichum* Atk. for it, naming the species *O. carpacepolium* Atk.

Sumstine (1911) stated that the species described by Saccardo and Atkinson are identical and cited the species as *Olpitrichum macrosporum* (Farlow ex Sacc.) Sumstine. The generic name *Rhinotrichum* Corda cannot be used, being a "nomen dubium". The fungus on which Corda's genus *Rhinotrichum* (with *R. simplex* Corda) was based is not known. No type material exists and Corda's illustration does not correspond to his description (Icones Fungorum 1: 17, Tab. 4, Fig. 232, 1837).

Later Linder (1942) transferred *Rhinotrichum macrosporum* and *R. tenellum* to *Oidium* Link ex Fr. emend. Linder. These two species differ from other species placed by Linder in *Oidium*. They have narrow basal hyphae, usually 2.5–6.5 μm wide and walls of basal hyphae, conidiophores and conidia are acyanophilous or only very slightly cyanophilous in Cotton blue, never dextrinous in Melzer reagents. On the contrary, species of *Oidium* Link ex Fr. (the conidial state of *Botryobasidium Donk*), have broad basal hyphae (usually 8–10 μm wide), walls of basal hyphae, conidiophores and conidia are cyanophilous in Cotton blue and walls of basal hyphae and sometimes walls of conidiophores and conidia are dextrinoid. *Rhinotrichum macrosporum* and *R. tenellum* do not belong to *Oidium* Link ex Fr. emend. Linder, but are best classified as belonging to *Olpitrichum* Atk. (von Arx 1970). This classification has also been proposed by Barron (1968). Taxonomically, his opinion is different from that accepted here because he also included species of *Oidium* Link ex Fr. emend. Linder.

On the basis of a similar development of conidia on sporogenous denticles at the apical part of conidiophores, Linder (1942) referred these two species to the genus *Oidium*. In *Oidium*, conidia are formed in short or long acropetal chains on the sporogenous vesicles or direct on the conidiophores; after they fall off broad truncate sporogenous denticles persist. In *Olpitrichum*, single conidia are formed at the top of sharply tapered sporogenous denticles which cover the terminal sporogenous part of conidiophores. Sporogenous denticles often have a small septum in the terminal part close to the apex (it is very distinct in *Olpitrichum macrosporum* and *O. patula*). The majority of species of *Olpitrichum* (except *O. tenellum*) have a microconidial phialosporous state of *Aspergillus* type, while in *Oidium* species no microconidial state is developed.

Unlike *Oidium*, species of *Olpitrichum* are closely related to "*Acremoniella atra* (Corda) Sacc." (the correct name of which is *Harzia acremonioides* (Harz) Cost. — see Holubová-Jechová 1974), as pointed out by Arx (1970) and Barron (1968). Evidence of the close relationship is not only the occurrence of *Aspergillus*-like phialosporous state but also the development of conidia. In "*Acremoniella atra*" single conidia are formed on the sharply tapered sporogenous cells which are stout and proliferating. There are always 1—2 distinct small septa close to the top of sporogenous cells. The present author does not consider these small septa to be annellations as stated by Tubaki (1963). The species of *Olpitrichum* and "*Acremoniella atra*" differ also by the morphology of conidiophores and sporogenous cells. Conidiophores of *Olpitrichum* are long, stout, erect or ascending, with sporogenous spiniform denticles in the terminal part. Conidiophores of "*A. atra*" are very short or indistinct, always more or less branched, with sharply tapering sporogenous cells as the ends of lateral branches. Lateral branches proliferate sympodially from the point under the apex and produce one or more next sporogenous cells which form an intertwined