The walls of the spores and basidia of Tricholoma found to be cyanophilic

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The author observed that the walls of the spores and basidia of all of those nine species (including the type) of the genus *Tricholoma* (Fr.) Staude (Agaricales) examined by him are weakly cyanophilic. In the literature these structures have been considered cyanophobic.

SINGER (1972) and I myself (HARMAJA 1974) have stated that the spore wall is cyanophobic, or acyanophilous, in those species of the genus *Tricholoma* (Fr.) Staude (Agaricales) which were examined for the response of that structure to cotton blue (the wall of the exceptional "sclerospores" of some species was, however, found cyanophilic and dextrinoid; see HARMAJA 1974). KOTLABA & POUZAR (1964) reported that in their preliminary survey they did not find cyanophilic spore walls in the family *Tricholomataceae* Roze.

Recently I re-examined the hymenial elements of *Tricholoma* in cotton blue, and observed that in fact the spore wall in all species studied is weakly (or very weakly) but without any doubt cyanophilic. The degree of cyanophily varies slightly with species, being most distinct in *T. bufonium* and *T. imbricatum* of the species examined. Anyway, the degree of cotton blue absorbing in *Tricholoma* appears somewhat lower than e.g. in the pink-spored species of *Clitocybe* recently transferred to *Lepista* (HARMAJA 1976). It is probable that in *Tricholoma* the wall of the hilar appendage, too, is cyanophilic which would be exceptional among pale-spored agarics with cyanophilic spore walls. In all species examined in the present study, also the basidial wall, including that of the sterigmata, proved weakly cyanophilic. This is apparently the first report of cyanophilic basidia in the order Agaricales.

The previous observations with results which are the contrary to the present ones, are thus considered erroneous, most probably due to examination not intensive enough. Always when the spore wall at first appears cyanophobic, it is of utmost importance to carefully check under high magnification the response of the wall by examining occasional empty (often collapsed) spores in which the cyanophily of the contents does not interfere with the observing of the character of the wall!

The nine species of *Tricholoma* examined by me include those four reported in SINGER 1972 and are: *T. albobrunneum* (Fr.) Kumm., *T. album* (Fr.) Quél., *T. aurantium* (Fr.) Ricken, *T. bufonium* (Fr.) Gillet, *T. caligatum* (Viv.) Ricken, *T. flavobrunneum* (Fr.) Kumm., *T. flavovirens* (Fr.) Lund. (the type species of the genus!), *T. imbricatum* (Fr.) Kumm., and *T. saponaceum* (Fr.) Kumm.

These new observations are no doubt of importance for the taxonomy of the family *Tricholomataceae*. It appears, for instance, that (1) the genera *Clitocybe* (Fr.) Staude sensu HARMAJA 1976 and *Tricholoma* are separated by a hiatus more distinct than supposed before, and (2) the genera *Lepista* (Fr.) W. G. Smith and *Tricholoma* are, to the contrary, related more closely than believed in recent times. In the light of these results, the closest relatives of *Clitocybe (sensu strictissimo)* with its cyanophobic spore wall should perhaps be sought among *Omphalina*

Quél., *Pleurotus* (Fr.) Kumm. and allied genera, and *Hygrophoraceae* Roze.

Even if the recent use of the cotton blue staining method has provided new and apparently more natural views about the generic limits and clarified relationships between genera in the family *Tricholomataceae*, all problems have by no means been solved yet and the taxonomy of the family still needs much research work.

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