

**Tvarové bohatství a vývojové vztahy hub plesňákovitých
Thelephoraceae sensu amplissimo**

Diversity and phylogenetic position of the Thelephoraceae sensu amplissimo

Albert Pilát

S U M M A R Y

Since about the beginning of this century, mycologists have paid more attention to a detailed investigation of the family *Thelephoraceae*, studying the phylogenetic relations of individual taxa. Although much has been done up to now, many problems have remained unsolved. The reason for the obstacles in the way of further investigation has been the great heterogeneity of this group of fungi, in that many species are very similar macroscopically in the morphological simplicity of their carpophores.

For the characterization of the genera (occasionally also higher taxa), there remain mainly anatomical, cytological and physiological properties. But none of these properties on which mycologists have tried to build the systematics of these fungi is reliable at all times, even though they are more reliable than morphological features. Similar configuration of the hymenophore appears repeatedly in groups which do not show any phylogenetic affinity. It is improbable that the developmental possibilities of the living matter are unlimited. As to morphological features, the genetic combinations seem to be limited only to certain "building plans", and that is why a similar structure of the hymenophore may reoccur in various, phylogenetically unrelated forms. Similar forms, therefore, come into existence representing only a convergent development, not an affinity. It is to be regretted that the systems of earlier authors were based on such features.

E. Gäumann (1964) was probably right when he said that the development of the *Basidiomycetes* was polyphyletic and that the exospore took its origin in the endospore in the course of a longterm development. A series of independent branches, which developed convergently, separated from the *Ascomycetes*. That is why we find apparently similar, but phylogenetically entirely different species in primitive types.

The majority of these primitive types are found in the family *Thelephoraceae* sensu amplissimo. However, we must take into account that in addition to really primitive and only superficially primitive types, degraded types may also be found in this group of fungi. Similar difficulties are also encountered in the *Auriculariales* and *Tremellales*. Some authors consider the holobasidium, from which the phragmobasidium developed (Gäumann, 1964) as original, while other authors are of the opposite opinion. This question cannot be looked at as safely solved. It is, therefore, impossible to claim with certainty that taxa with holobasidia more similar to heterobasidia are older as compared with types with perfect basidia. For instance, the *Ceratobasidiaceae* possess basidia which, according to some authors, are comparable to the basidium of *Sebacina*, from which they differ in that they have no septa. These are also similar to the basidia of the genera *Uthatabasidium* and *Botryobasidium*, which are considered to be primitive types of the family *Corticaceae*. Urniform basidia usually have more than four spores. In addition to *Botryobasidium*, the genus *Sistotrema* has such basidia. In my opinion it is not sufficiently evident that these genera are really primitive or undeviated, since we may also assume that they might be reduced from more progressive types. *Sistotrema confluens* has been placed in the *Hydnaceae* or the *Polyporaceae*, since it forms pilei up to three cm in diameter, and forms short, twisted lamellae.

Neither can the so-called utriform basidium be looked upon as primitive, nor can its development be derived from the *Heterobasidiomycetes*. The reason for such a form of the basidium may only be the fact that it is based deeply in the cataphyllum or in the conspicuously thickened euhymenium.

In addition, special basidia, such as occur in *Aporpium caryae*, cannot be used, in my opinion, as a proof that this fungus belongs to the *Tremellales* instead of the *Polyporaceae*. The "phragmobasidia" in this species are predominately imperfect, since in many cases the longitudinal septa do not wholly divide the basidium as was found by Macrae. I think that this fungus is not closely related to the *Tremellales*, but that it belongs to the family *Polyporaceae*. As to the basidium, this is an example of a developmental convergence.