

THE MAKING OF GENERA IN FUNGI.

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The question of genus making and what it takes to constitute a genus, has provoked much discussion from the earliest times and we are now possibly no nearer its solution than before, possibly farther away.

The object of this brief paper is to present one point of view and one which is very apparent even to the youngest student of systematic mycology. It occurs to the student that genera are often erected for convenience and for the convenience of analytic keys rather than for any great scientific differences in their characteristics. He often finds genera widely separated in sequence in texts, when in reality they may possess only a single slight difference and this difference may not be constant among the various species of the genera. As an illustration of the above, we may cite the case of *Pleurotus* and *Claudopus* among the Agaricaceae. The chief difference between these two genera seems to be that of spore color. This single difference, and we have many such genera, necessitates a separate genus because of a major division of the family based upon spore color. The specimen at hand whether it be a *Pleurotus* or a *Claudopus*, may be traced through the key to exactly the same place except as to spore color. When, however, one tries to classify such a well recognized species as *Pleurotus sapidus* Kalchbr., he will likely refer it to the genus *Claudopus* on account of the beautiful light grayish vinaceous spores in mass. These so-called pink spores will retain their color for many months in a strong light. However, after a study of the very similar oyster agaric, *Pleurotus ostreatus* Fr., one can scarcely make a separate species out of *P. sapidus*, much less a genus. Certainly it belongs to the pink-spored group as far as spores are concerned, although no one of experience would consider it a *Claudopus*.

In the group of Ascomycetes, we find the genus *Rosellinia* widely separated from *Hypoxylon* by certain mycologists on account of the separate perithecia of the former and the stromatic perithecia of the latter. Yet even a superficial study of the family Xylariaceae will display *Rosellinia* forms whose perithecia coalesce and *Hypoxylon* forms whose perithecia are separate. Where such forms occur, we have *Rosellinias* that are apparently *Hypoxylons* and *Hypoxylons* that are apparently *Rosellinias*. If broader and better characters had been chosen on which to base the above genera, this confusion would not occur and these closely related genera would not be placed in widely separated families. In view of the remarkable similarity of the species of these genera, as to habitat, external appearance and spores, we see scarcely more than a subgeneric difference at the most. Saccardo seems to be one who did not fall into the usual error and used a system based upon spore-color which happens to place *Rosellinia* where it rightfully belongs.

In this same family (Xylariaceae), we notice the closely related genera, *Nummularia*, *Hypoxylon* and *Daldinia*. The globose forms of

all three are almost identical and have similar spores. While one of the chief generic characteristics of *Daldinia* is the concentric layers of its stroma, we have a rather common species of *Hypoxylon* whose most noticeable characteristic is that of concentric stromatic layers. It follows that a student learns these similar fungi as individuals rather than by following a key to genera and species. Concerning *Nummularia*, Ellis and Everhart say: "The genus is too closely allied to *Hypoxylon*, especially the discoid forms."

Among the imperfect fungi, a group in which the writer is particularly interested, genera seem to have been formed for convenience in many cases and we have been led into species multiplicity and countless errors.

As an example, we cite the common genera, *Phyllosticta*, *Phoma* and *Macrophoma*. When the first two were set apart, their only difference was that of habitat. If on a leaf, it was *Phyllosticta*; if on any other part of a plant, it was a *Phoma*. When one considers the similarity of a young shoot and a leaf, he wonders why such a division was ever made. Furthermore, those species of the genus *Phoma* having spores more than fifteen microns long, were placed in a separate genus, *Macrophoma*, this arbitrary difference in spore length sufficing for a new genus.

The entire group of imperfect fungi abounds in similar examples. In the *Hyphomycetes*, the group with scattered and tufted conidiophores is separated into the families *Mucedinaceae* and *Dematiaceae* entirely on the basis of mycelium color, yet this basis was not used in separating the *Stilbaceae* and *Tuberculariaceae*.

It is to be noted also that genera have been based upon spore shape. In the classification group known as *Scolecosporae*, a spore must be long in proportion to its width. But just what proportion? While a standard of proportion may be attained by long study of the groups, the actual determination, left to the individual, has resulted in the placing of those fungi with spores of intermediate proportion in the group which suits the judgment of the individual. As a result, a student must search through several genera to locate his plant. A spore size limit as in the case of *Phoma* and *Macrophoma* would be preferable.

The common practice of forming sub-groups of any kind for the purpose of classification where the groups are large and unwieldy, has in many cases, resulted in the establishing of many doubtful or peculiar genera.