

Diversity of conidiomatal structures and its taxonomic implications

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Conidiomata are so-called fruit-bodies of anamorphic fungi (Deuteromycotina), which are extremely diverted in morphology. They may be subdivided into some categories; *i.e.*, acervuli, pycnidia, pycnothyria, sporodochia, synnemata, *etc.* On the basis of conidiomatal structures, two classes and seven orders are generally recognized in the Deuteromycotina. However, intermediate forms of conidiomata exist very frequently. Characteristics of conidiomatal structures should be used at much lower taxonomic level.

Fruit-bodies, fructifications or sporocarps are spore-bearing organs, and they are referred to as ascocarps (ascomata) and basidiocarps (basidiomata) in ascomycetes and basidiomycetes, respectively. They are subdivided into several categories. Fructifications of anamorphic fungi may be categorized as acervuli, pycnidia, pycnothyria, sporodochia, synnemata, or simple conidiophores. According to the characteristics of fructifications, teleomorphic and anamorphic fungi may be classified into higher taxa (*e.g.*, classes or orders). Following the Saccardo system, the Deuteromycotina is now distributed into two classes and seven orders based on the fructifications.¹⁾

As our knowledge of the fructifications of anamorphic fungi advances, it becomes clear that different kinds of fructifications are not always easily distinguishable and are in some instances continuous between even the Coelomycetes and Hyphomycetes (Figs. 1,2).²⁾ Different fructification types can be found at different stages of the life-cycle of a certain fungus. Consequently, the term conidioma (pl., conidiomata) was coined for all specialized, multi-hyphal, conidium-bearing structures. The term was then extended to embrace pycnidia, acervuli, sporodochia, synnemata and all intermediate forms.³⁾ Focusing especially on the Coelomycetes, an alterna-

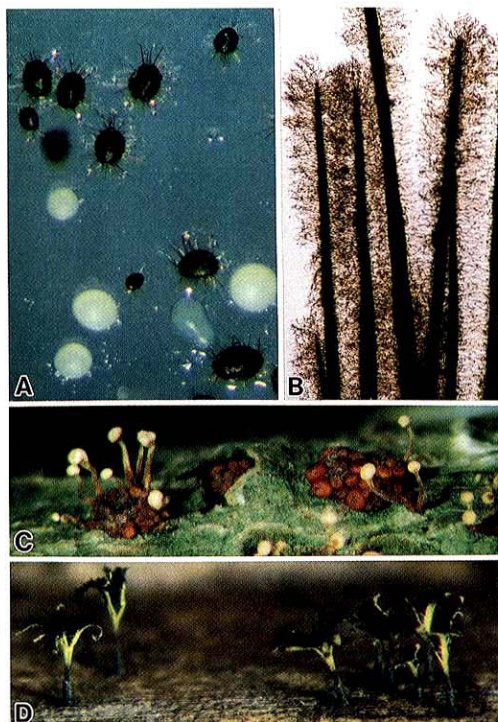


Fig. 1. Conidiomata of some synnematosus and allied fungi.
a. *Chaetomella raphigera*. b. *Phaeoisaria magnifica*. c. *Tubercularia lateritia* and its teleomorph (*Nectria pseudotrichia*). d. *Endocalyx cinctus*.

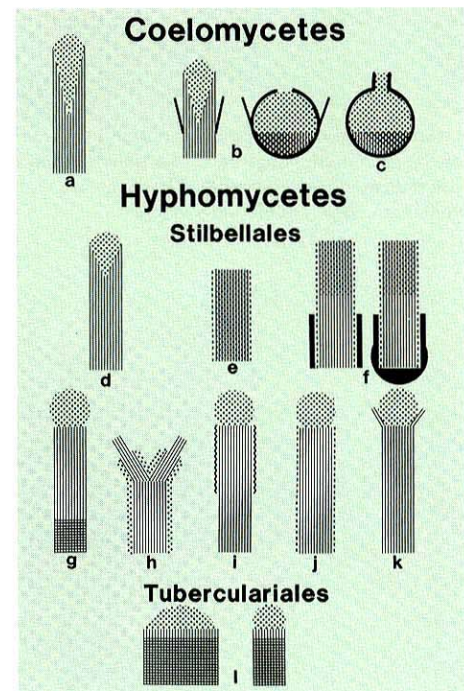


Fig. 2. Diagram of conidiomatal structures of synnematosus and allied fungi with indication of their traditional classification.²⁾ a. *Cornucopiella* sp. b. *Chaetomella raphigera*. c. common pycnidium. d. *Everhartia lignatilis* and *Morrisographium* sp. e. *Endocalyx melanoxanthus* var. *melanoxanthus*. f. *Endocalyx cinctus*. g. *Graphilbum pleomorphum*. h. *Sarophorum palmicola*. i. *Tubercularia lateritia*. j. *Pesotum piceae*. k. *Leptoxiphium* sp. l. *Tubercularia vulgaris*.

tive system was proposed for the suprageneric classification of the Deuteromycotina.⁴⁾ The new system is founded on the

Hughes system that is based on conidiogenesis, and does not take a serious view of conidiomatal structures.

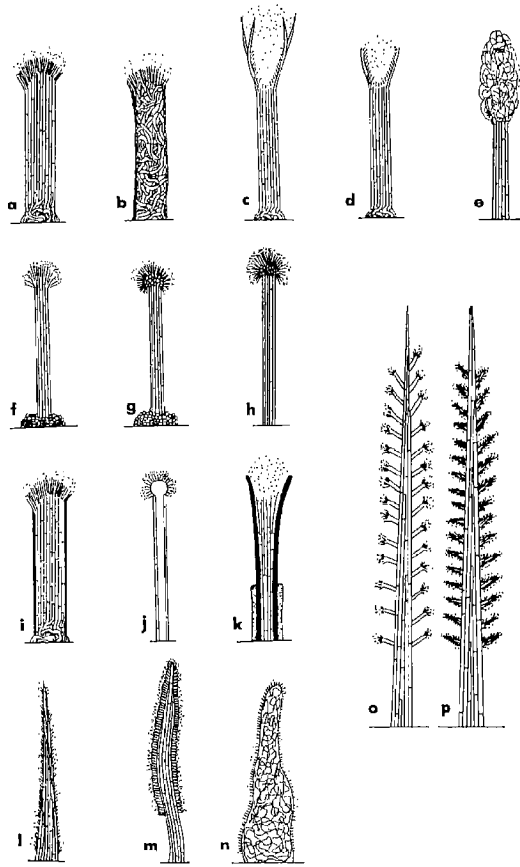


Fig. 3. Anatomical and morphological variation in synnematosus conidiomata, diagrammatic longitudinal sections.⁵⁾ Monomitic unless otherwise indicated. a-k. determinate synnemata. l-n. indeterminate synnemata. o-p. compound synnemata.

Morphological and anatomical variability of synnematosus conidiomata was recently surveyed.⁵⁾ A system was proposed for describing synnemata based on general morphology, stipe anatomy and hyphal system, and conformation of the sporulating zone (Fig. 3). It now becomes important to study and describe the morphology, anatomy, hyphal systems and capitula of synnemata because they may reveal distinctive patterns that assist in recognizing relationships or evolutionary trends. Comparative anatomy may also demonstrate a continuum of anatomical patterns in a closely related group of fungi. It seems that rigid interpretation of conidiomatal categories, as proposed by the Saccardo system, is unlikely to result in a classification that is consistent with the classification of the teleomorphs.

It is almost true that conidiomata and conidiogenesis have been overemphasized so far in the classification of the Deuteromycotina. We should use critically these criteria especially in pleomorphic anamorphic fungi. Chemotaxonomical and molecular taxonomical techniques are also very effective for the systematics of anamorphic fungi.

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References

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