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Url1.: https://en.wikipedia.org/wiki/Ascomycota

SYSTEMATICS OF DIVISION BASIDIOMYCOTA 1

EUAGARICS

Euagarics clade includes not only forms with lamellate (i.e. agaricoid) basidiocarps formerly classified in the Agaricales, but also forms with other hymenial configurations. This means that there are few, if any, reliable gross morphological characters by which members of the euagaricsclade can be recognized. It is probable thatgaricoid basidiocarp types have evolved repeatedly. Euagarics includes 26 families, 347 genera and about 10. 000 species, but cautioned that there are difficulties in defining these families at present (Webster& Weber, 2007).

Order: *Agaricales*

Family: *Agaricaceae*

The Agaricaceae are one of the most diverse families of the Agaricales, estimated to contain over 50 genera and some 900 species. The spore print (i.e. the accumulation of spores projected from a basidiocarp) may be white or coloured. There are also variations in the structure of the hymenophoral trama and the surface of the pileus. Partial and/or universal veils are usually present. Despite these variations, molecular evidence supports the view that the core genera of this family, including Agaricus and Lepiota, are monophyletic.

Agaricus is a genus of mushrooms containing both edible and poisonous species, with possibly over 300 members worldwide. Members of *Agaricus* are characterized by having a fleshy cap or pileus, from the underside of which grow a number of radiating plates or gills on which are produced the naked spores. They are distinguished from other members of their family, *Agaricaceae*, by their chocolate-brown spores. Members of *Agaricus* also have a stem or stipe, which elevates it above the object on which the mushroom grows, or substrate, and a partial veil, which protects the developing gills and later forms a ring or annulus on the stalk.

Family: *Amanitaceae*

This family contains several species valued for edibility and flavor, and other deadly poisonous ones. More than half the cases of mushroom poisoning stem from members of this family. The most toxic members of this group have names that warn of the poisonous nature, but others, of varying degrees of toxicity, do not.

Family: *Pluteaceae*

Pluteaceae is a family of small to medium-sized mushrooms which have free gill attachment and pink spores.

Family: *Pleurotaceae*

Pleurotaceae is a family of small to medium-sized mushrooms which have white spores. The family contains four genera.

Family: *Schizophyllaceae*

The *Schizophyllaceae* are a family of fungi in the Agaricales order. The family contains two genera and seven species. Species cause white rot in hardwoods.

Family: *Bolbitiaceae*

Bolbitiaceae is a family of mushroom-forming basidiomycete fungi and it includes 17 genera and 287 species.

Family: *Hygrophoraceae*

Hygrophoraceae contains white-spored, thick-gilled agarics (gilled mushrooms), including *Hygrophorus* and *Hygrocybe* species.

Family: *Mycenaceae*

Mycenaceae contains 10 genera and 705 species. Its members are saprobic, have a cosmopolitan distribution, and are found in almost all ecological zones.

Family: *Tricholomataceae*

This family has not yet been clearly separated from related groups in recent phylogenetic

analyses. Genera currently placed here include *Tricholoma, Lepista, Clitocybe, Termitomyces* and *Lyophyllum.*

Family: *Strophariaceae*

Strophariaceae includes18 genera and 1316 species. The species of Strophariaceae have red-brown to dark brown spore prints, while the spores themselves are smooth and have an apical germ pore. These agarics are also characterized by having a cutis-type pileipellis. Ecologically, all species in this group are saprotrophs, growing on various kinds of decaying organic matter.

Family: *Psathyrellaceae*

Psathyrellaceae is a family of dark-spored agarics that generally have rather soft, fragile fruiting bodies, and are characterized by black, dark brown, rarely reddish, or even pastel-colored spore prints.

BOLETOID CLADE

This clade includes not only the Boletales, but some other groups with basidiocarps which are dissimilar in appearance. Traditionally, the Boletales, typified by the genus Boletus, have included forms with fleshy, mushroom-like basidiocarps with tubular hymenophores. Later, based on morphological and chemical criteria, the concept was expanded to include gill-bearing forms such as Paxillus and Hygrophoropsis. Relationships were also suggested between poroid boletes and resupinate forms such as Coniophora or Serpula, and gasteroid genera such as Scleroderma or Rhizopogon. Molecular phylogenetic techniques have confirmed these relationships and a boletoid clade has been recognized to embrace this wider concept. Boletoid clade contains a gill-bearing group (Paxillaceae), two poroid groups (Boletaceae, Suillaceae) and resupinate forms (Coniophoraceae) (Webster& Weber, 2007).

Order: *Boletales*

Family: *Paxillaceae*

Paxillaceae contains nine genera and 78 species.

Family: *Boletaceae*

Boletaceae members primarily characterised by small pores on the spore-bearing hymenial surface, instead of gills as are found in most agarics. The family has been the subject of extensive systematic revisions in recent years, as some of the early established genera, have revealed to be highly polyphyletic, and the original number of genera within the family had been underestimated

Family: *Suillaceae*

Suillaceae includes 3 genus (*Suillus, Truncocolumella* and *Psiloboletinus*) 54 species (Webster& Weber, 2007).

Family: *Coniophoraceae*

This family includes wood-rotting fungi such as *Serpula* and *Coniophora* which form spreading, crust-like resupinate fructifications (Webster& Weber, 2007).

POLYPOROID CLADE

Included in this clade are certain members of the *Polyporales*, a group comprising hymenomycetes in which (with a few exceptions) the hymenium is not borne on the surface of gills. It included bracket fungi (polypores), tooth fungi, coralloid fungi and forms with flattened or crust-like basidiocarps. However, morphological, anatomical and chemical studies have indicated that this was not a natural grouping, and molecular phylogenetic investigations have amply confirmed this view. Economically important wood-rotting bracket fungi are found in the polyporoid clade. (Webster& Weber, 2007).

RUSSULOID CLADE

The russuloid clade is probably the most confusing group in the eight-clade system. This clade consists of 12 families, 80 genera, and 1767 species. Russuloid agarics (Lactarius and Russula)represent an independent evolutionary line of agarics, not directly related to the

Agaricales. This group also includes a number of russuloid hypogeous fungi, polypores such as Bondarzewia, some tooth fungi (Auriscalpium vulgare), and club fungi (Artomyces). Basidiospores in this group are typically ornamented with amyloid warts or reticulation but a few exceptions are known (Heterobasidion annosum) (Webster& Weber, 2007).

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