

Basidiomycetes (contd.)

Classification-

1. The class Basidiomycetes has been classified by mycologists such as Alexopoulos, Hawker and others on the basis of origin and structure of basidium as follows :-

Basidiomycetes are classified into two sub classes namely Heterobasidiomycetes and Homobasidiomycetes on the basis of septation/partition of basidium. Members which have fragmented basidium are placed under sub class Heterobasidiomycetes and those which do not have fragmented basidia are placed under Homobasidiomycetes.

Heterobasidiomycetes- Partitioned or deeply divided basidium.

Order 1. Tremellales

2. Uredinales

3. Ustilaginales

Homobasidiomycetes – Basidia not partitioned/fragmented.

Series (i) Hymenomycetes- Hymenium exposed.

Order 1. Exobasidiales

2. Polyporales

3. Agaricales

Series (ii) Gastromycetes- Hymenium enclosed

Order 4. Hymenogastrales

5. Lycoperdales

6. Sclerodermatales

7. Phallales

8. Nidulariales

The subclass ***Heterobasidiomycetes*** includes many important fungi which are obligate parasites and cause serious diseases in many crop and higher plants. Following are some important features of Heterobasidiomycetes:-

- (i) They lack dolipore septa and clamp connection. Clamp connection is a process of dikaryotization.
- (ii) Production of thick walled binucleate teleutospores.
- (iii) Basidium is always fragmented transversely or longitudinally into 2, 3, or 4 cells.

(iv) The mature basidium has two parts, lower or hypobasidium and the higher part called epibasidium.

(v) The number of basidiospores in each basidium is generally four, may be more in some forms.

Important genera of this sub class are Rusts and Smuts belonging to Uredinales and Ustilaginales respectively. These cause serious damage to wheat and some other crops.

The subclass **Homobasidiomycetes** includes about 7,500 species, under 300 genera. They grow in varied habitats such as forest litter, grass land, on dung, and even on termite mounds and wooden logs. Following are some important features of Homobasidiomycetes:-

(i) They form large conspicuous fructifications called basidiocarps.

(ii) Septal pore dolipore type.

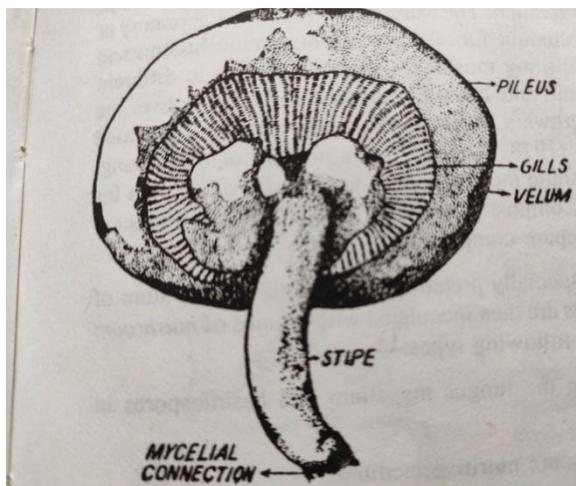
(iii) The basidium develops directly from a terminal cell of a dikaryotic hypha.

(iv) Generally basidia are arranged in a regular fertile layer, the Hymenium which extends over the surface of the basidiocarp.

(v) Both karyogamy and meiosis takes place in the basidium itself at different stages of its development.

(vi) The basidium bears generally 4, sometimes 1, 2, or even 8 basidiospores. Basidiospores are borne singly on a short stalk called sterigma (pl. sterigmata).

The series Hymenomycetes includes two important orders Agaricales and Polyporales. Agaricales includes mushrooms such as *Agaricus*, *Pleurotus*, *Lentinus*, *Calocybe*, *Volveriella*. Some species are poisonous (toadstools). *Amanita* is a very poisonous species. Polyporales includes polypores, which can be seen on wooden logs and sometimes on dead bark of trees. These are known as wood rotting fungi also. These are also called as pore fungi because of presence of many pores in the fruiting bodies or basidiocarps.



A common mushroom showing different parts.



Fig.courtesy: Concepts of Biology , *Kotpal,Tyagi, Bendre & Pandey .Rastogi Publ.*