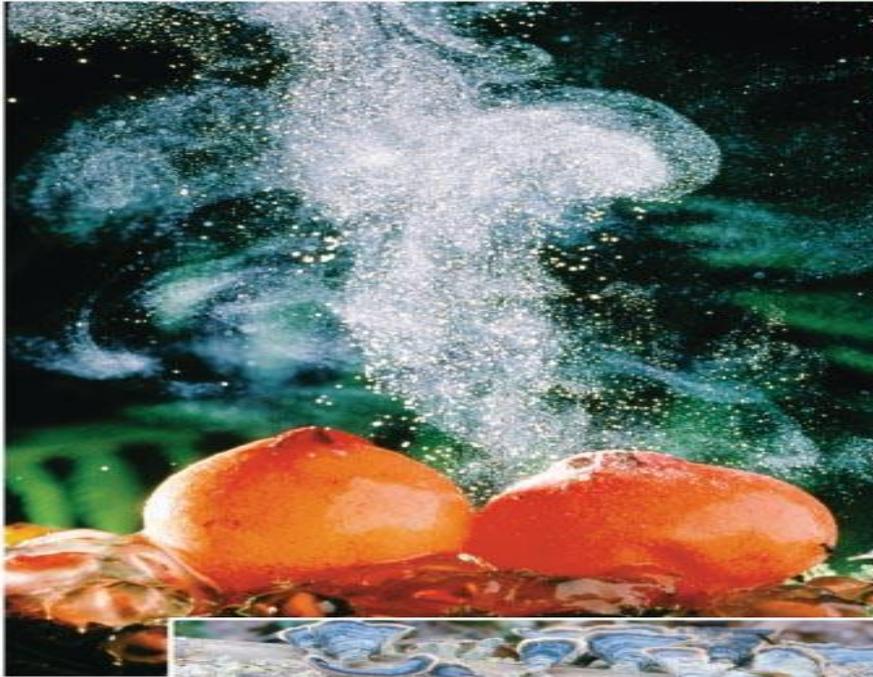


Characteristic of Basidiomycotina :-

- 1-Basidiomycotina are **filamentous fungi** composed of septated hyphae (except for **yeasts**) are unicellular.
- 2-Heterotrophic saprobes – cells of hyphae **secrete digestive enzymes** and absorb products of digestion
- 3-include these groups: mushrooms 3-include these groups: mushrooms, puffballs 3-include these groups: mushrooms, puffballs, stinkhorns 3-include these groups: mushrooms, puffballs, stinkhorns, bracket fungi 3-include these groups: mushrooms, puffballs, stinkhorns, bracket fungi, earth stars others cause diseases for **human** like yeast *Cryptococcus* and parasite on **plants** , **rusts disease** , **smuts** disease many species eaten are **poisonous** or **semi-poisonous species**

Fig. 31-18

▶ Maiden veil fungus (*Dictyophora*), a fungus with an odor like rotting meat



▶ Puffballs emitting spores

▶ Shelf fungi, important decomposers of wood

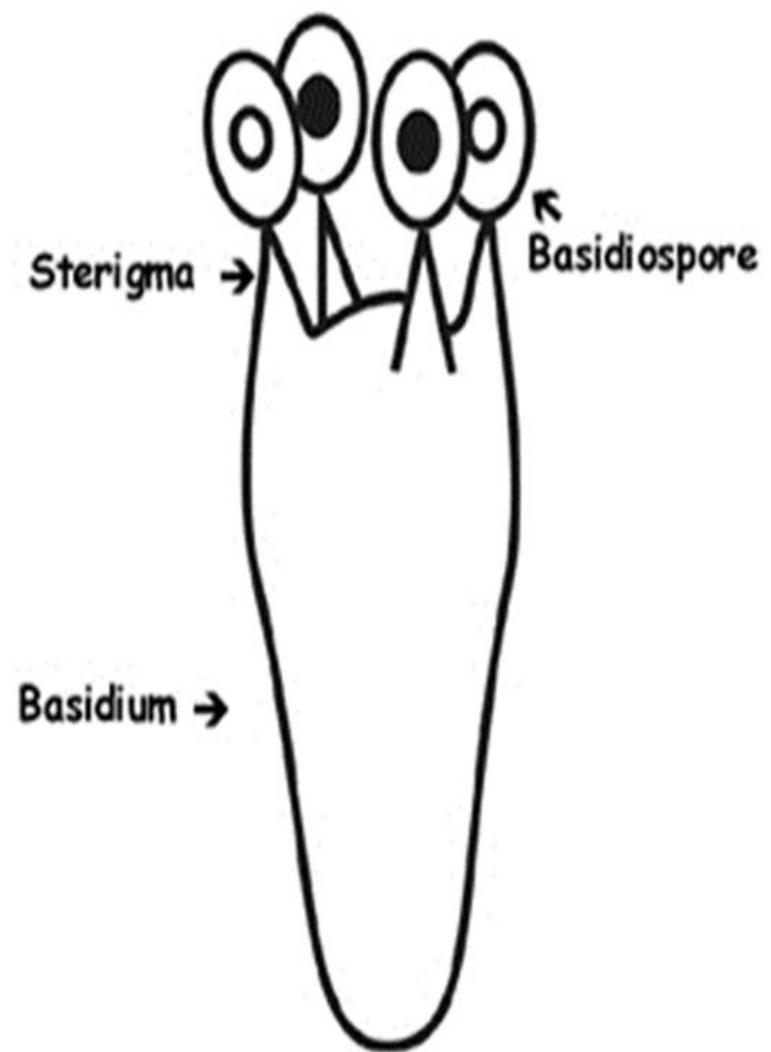




Jelly fungus-Basidiomycete



- 4- The cell walls of the hyphae are variably composed of chitin and β -glucans.
- 5- Almost all its individuals are **terrestrial , parasitic or saprophytic**
- 6- The sexual spores produced are **basidiospores** that are typically borne, exogenously, on horn-like **sterigmata** (sing.=sterigma) of **basidia** (sing.=basidium) each basidium bear four basidiospores
- 7-reproducing A sexually by **budding** , **fragmentation** of hyphae to form **Arthrospores**(**arthrospore**. A spore resulting from the fragmentation of a hypha, as in the conidial stage of many Basidiomycota.) , **conidia** , **urediospores**



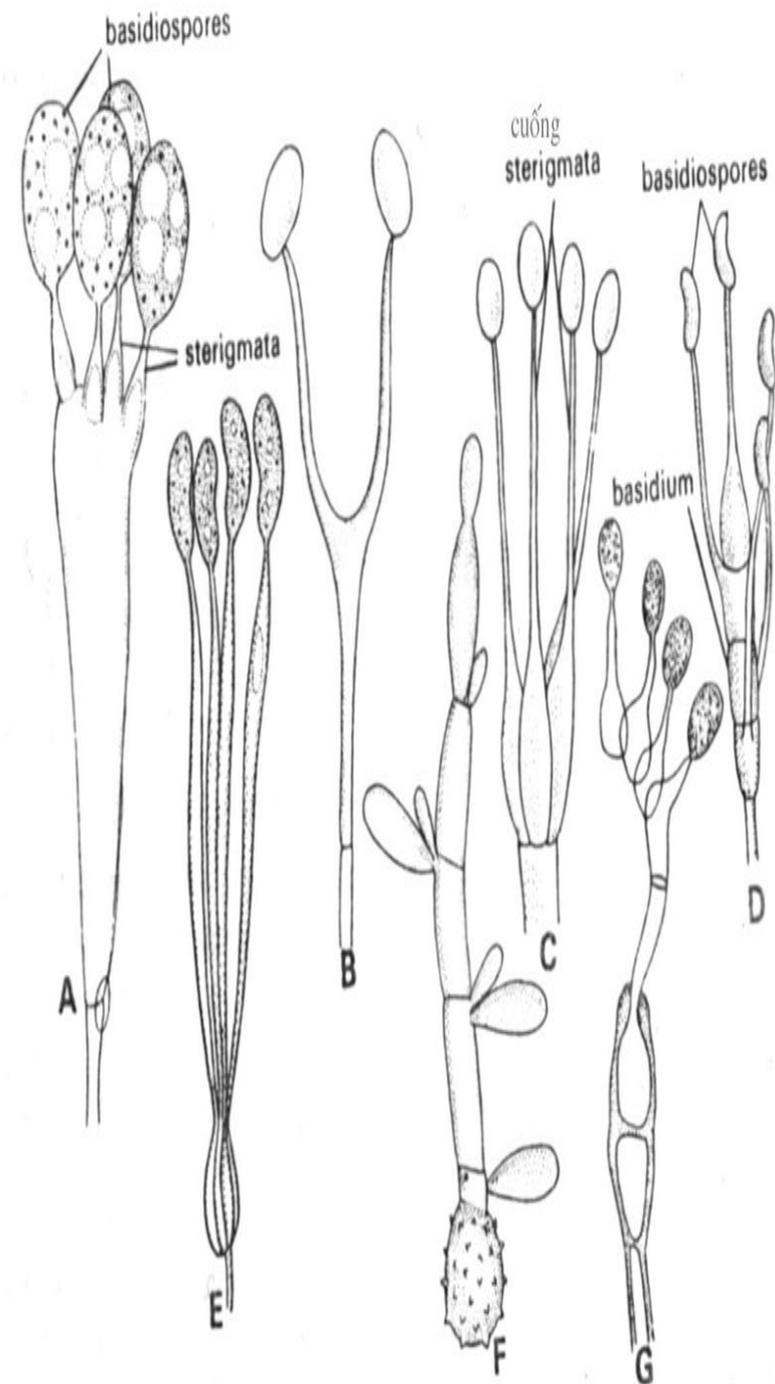
Unicellular basidium, with four sterigmata and basidiospores.

Basidiospore and basidium

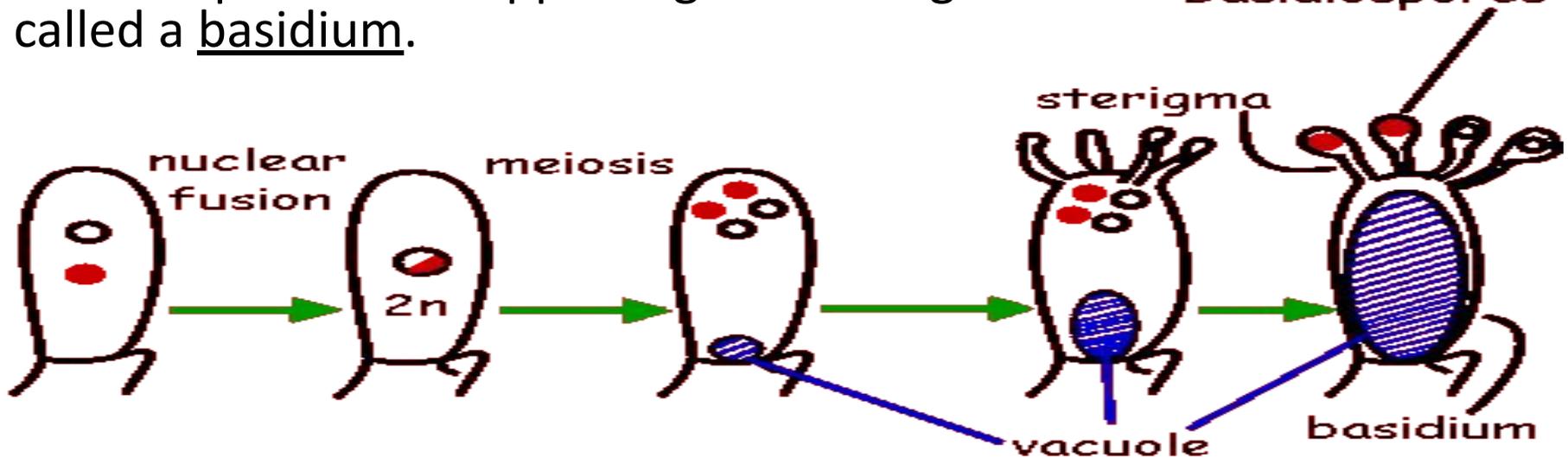
Basidiospore is sexual reproduction unit have a single haploid nucleus ($1n$) that is the product of meiosis, and they are produced by specialized fungal cells called basidia (sexual structure, swollen at the top and carries on its surface four sterigmata each sterigma bear one basidiospore therefore basidiomycota also is called club fungi .there are many types of basidia

. **Holobasidium** : Most basidiomycetes have **single celled** basidia (consists from one cell non sepatate in different shapes .

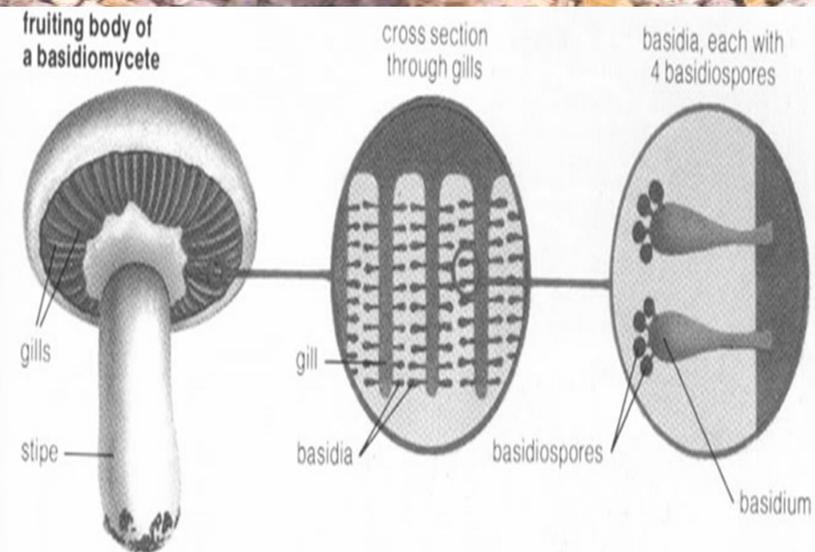
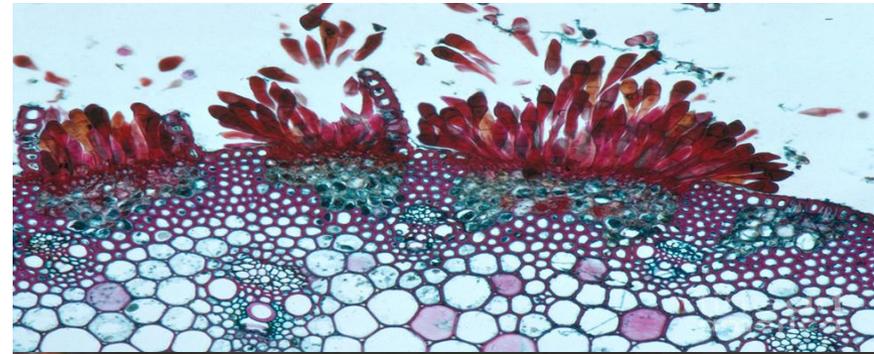
Phragmobasidium A basidium **multicellular** that is divided into more than one cell by transverse or longitudinal septa.



- **Sexual sporulation in the basidiomycotina**
- formation of basidiospores:
- two haploid nuclei in an apical dikaryotic two haploid nuclei in an apical dikaryotic hyphal compartment (often within a basidiocarp) fuse to form a diploid nucleus.
- the diploid nucleus undergoes meiosis to produce four haploid nuclei.
- four small outgrowths - sterigmata - begin to form at the top of the hyphal compartment and the tip of each sterigma begins to inflate.
- the uninucleate swelling at the the tip of each sterigma matures into a basidiospore.
- the compartment supporting the sterigmata and basidiospores is called a basidium.



- Classification of fungi belonging to the Basidiomycota is based upon the presence or absence of fruiting bodies (BASIDIOCARPS) and the type of basidiocarp formed.
- Classification of fungi belonging to the Basidiomycota:
 - **1. Teliomycetes**
 - basidiocarp (fruiting body) absent .
 - **The rust and smut fungi** are two important of plant pathogenic fungi belonging to the Teliomycetes.
 - **2. Hymenomycetes**
 - The largest class in the Basidiomycota.
 - The basidia are arranged in a layer known as a HYMENIUM that is fully exposed at maturity.
 - Basidiocarp is present (**mushroom**)
 - **3. Gasteromycetes**



• 3. Gasteromycetes

- Includes fungi known as **puff-balls, earth-stars and birds' nest fungi**.
- The spore-producing hymenium is NOT EXPOSED at maturity.
- But these fungi have evolved a variety of mechanisms to ensure efficient spore liberation.



• **Deuteromycotina**

- The division Deuteromycotina is also called the *Fungi Imperfecti* or Imperfect Fungi referring to our "imperfect" knowledge of their complete life cycles. The Deuteromycotina are characterized by
- 1- production of **septate mycelium** and/or yeasts,
- **2- sexual life cycle that is either unknown or absent.**
- 3-Asexual reproduction is by means of **conidia** (sing.=conidium)
- 4-Where sexual reproduction has been determined for species in this taxon, the sexual stage is usually referable to the Ascomycota or Basidiomycota.
- 5- when both sexual and asexual stages are known to occur in a life cycle, they are referred to as **telomorph** and **anamorph**, respectively.