

I. CLASS HEMIASCOMYCETES

- The fungi in this class include the **yeasts**.
- They have asci that are borne free or naked on the surface of the host or substrate; that is they are **not enclosed in any kind of fruiting body**.
- The thallus is simple in structure and when the **mycelium** is formed, they are **very scanty**.
- These fungi **do not form ascogenous hyphae** and form diploid cells either by fusing with another cell of opposite mating type if they are heterothallic or with sibling if they are homothallic.
- Although this class is widely distributed, the members are often associated with ripening fruits and plant exudates.
- We will consider two orders in this class-the Endomycetales and Taphrinales.

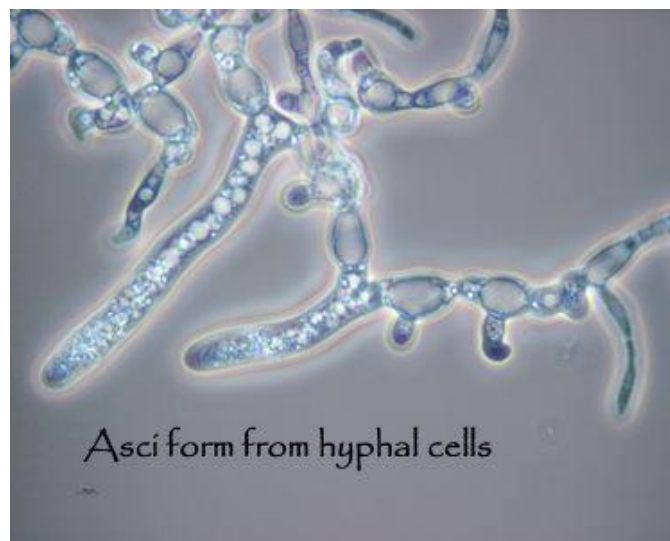
A. ORDER ENDOMYCETALES

- Order Endomycetales-includes those Hemiascomycetes in which two cells fuse to form a zygote, which is then transformed into an ascus.

1. Family Dipodascaceae-members of this family have mycelial forms with multisporous asci that do not proliferate.

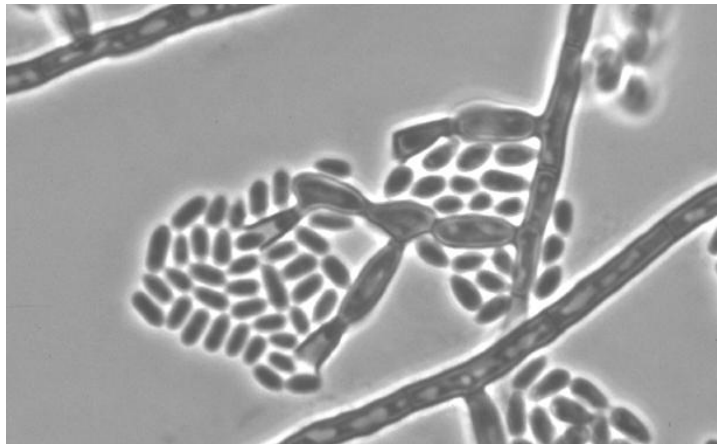
Dipodascus-

- mycelium consists of irregular cells
- and bears long slender asci which taper toward the apex.
- The ascospores are small, one-celled, and hyaline.



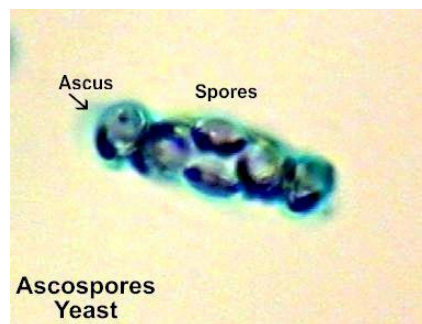
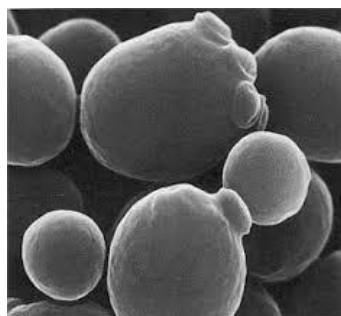
2. Family Endomycetaceae

- Species in this family differ from Dipodascaceae in producing a small and generally definite number of ascospores (1-8) in each ascus.
- The mycelium is composed of well-developed hyphae.
- Asexual reproduction is through the production of arthrospores.
- *Geotrichum*-filamentous fungus and a pathogen on fruits. Its teleomorphic stage, *Endomycetales geotrichum*, occurs when mycelium of opposite mating type come together and an ascus forms in between the two hyphae.



3. Family Saccharomycetaceae

- This family represents the ascomycetous yeasts.
 - Mycelium is scanty or lacking and
 - the asci can contain 1-8 ascospores.
- a. *Saccharomyces*-in this genus,
- the vegetative cells reproduce by budding and
 - fermentation of sugars is vigorous.
 - The ascospores are round and there are four present per ascus.



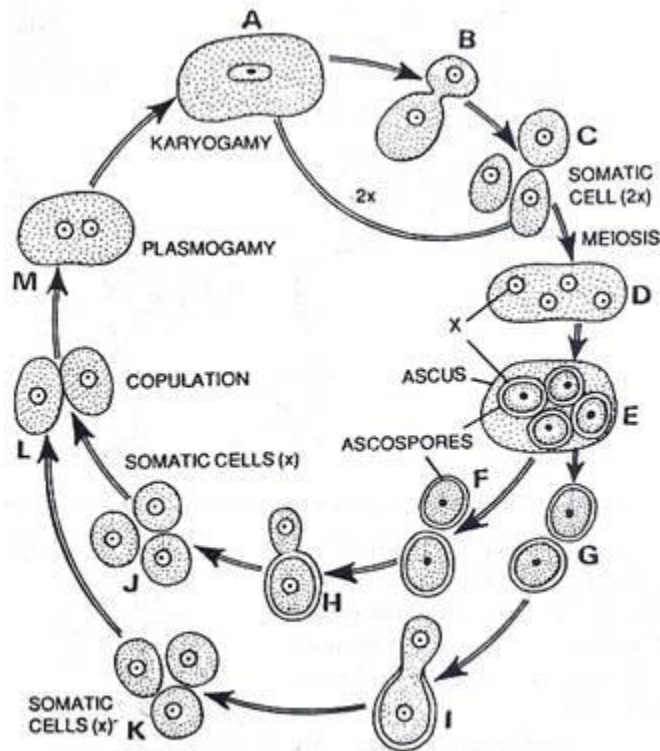


Fig. 12.23. Haplo-diplontic type of life-cycle in *Saccharomyces cerevisiae*.

b. *Schizosaccharomyces*-the vegetative reproduction in this genus is mainly by fission.

c. *Hansenula*-the shape of the ascospores of this genus is different from the more common circular shapes of the two genera above.

B. ORDER TAPHRINALES

- The Taphrinales includes species in which the ascus arises from binucleate cells that form directly from the mycelium.
- The asci are erumpent [tending to grow out vigorously from a substrate so as to burst through or rise above its surface <*certain erumpent fungi that parasitize leaves*>] through the host epidermis and are borne free on the host.
- All are parasitic on higher plants and some cause economically important plant diseases.
- Usually, eight one-celled ascospores are formed, but the number varies from four to many in different species.
- There is a single family, the Taphrinaceae, and one genus *Taphrina* e.g. *Taphrina deformans*

