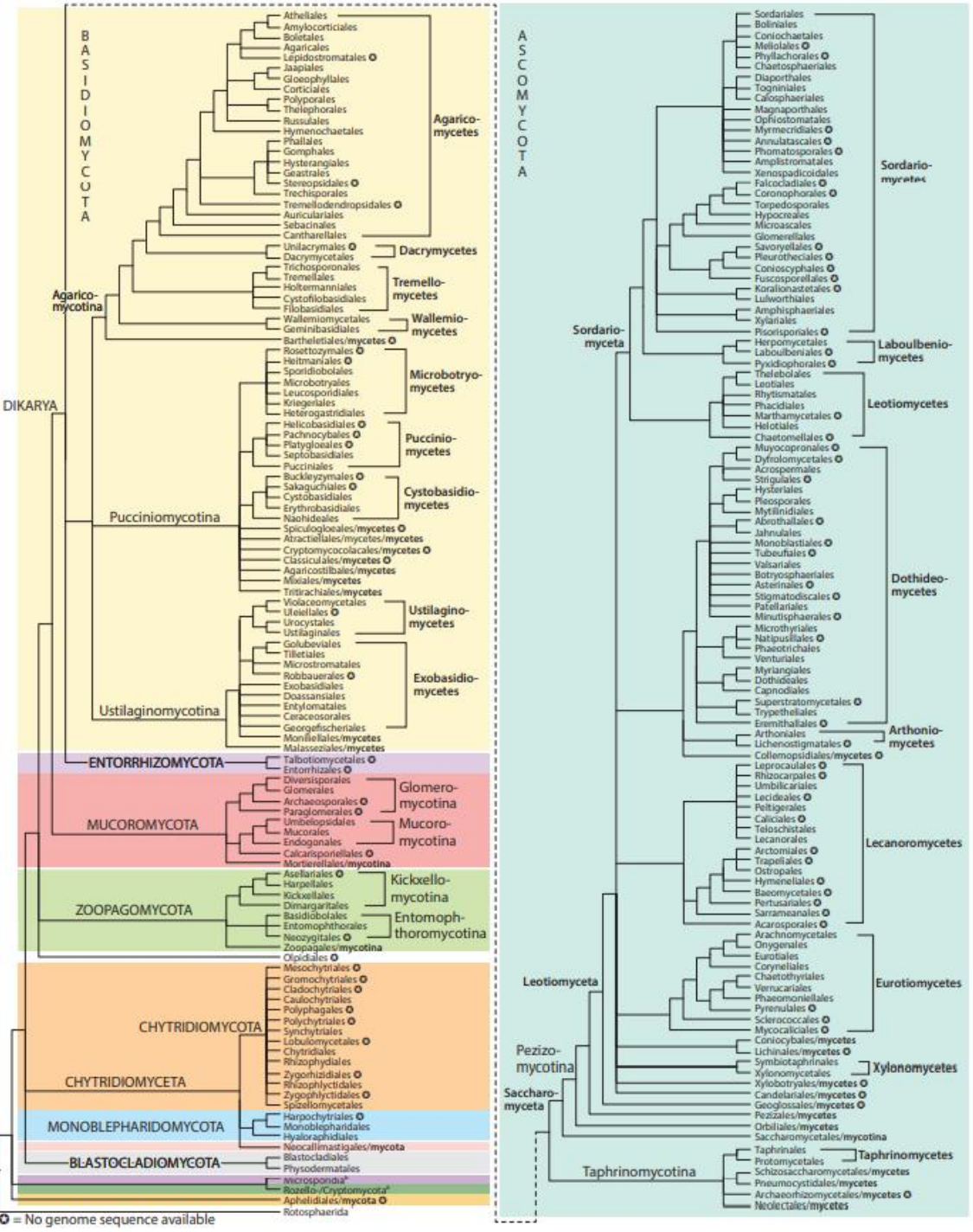
ASCOMYCOTA

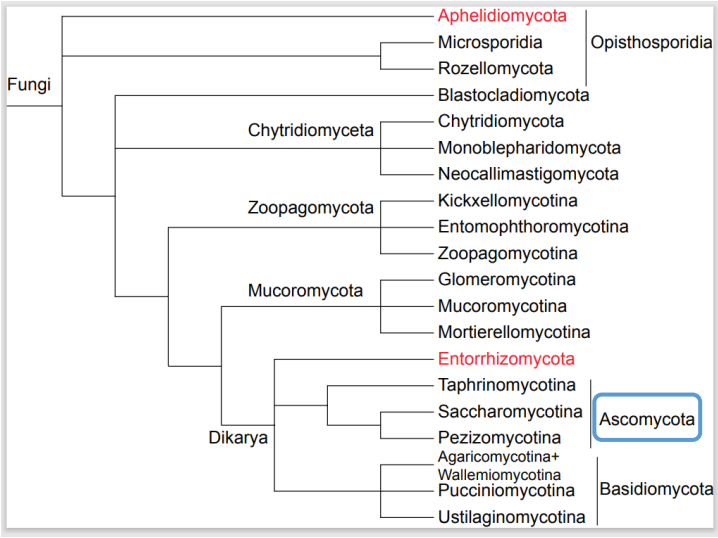
Dinorah Pan
Sección Micología
Facultad de Ciencias

CONTENIDO

- Clasificación de Ascomycota
- Características generales del phylum Ascomycota
- Rol ecológico
- Reproducción sexual y asexual. Ciclo de vida



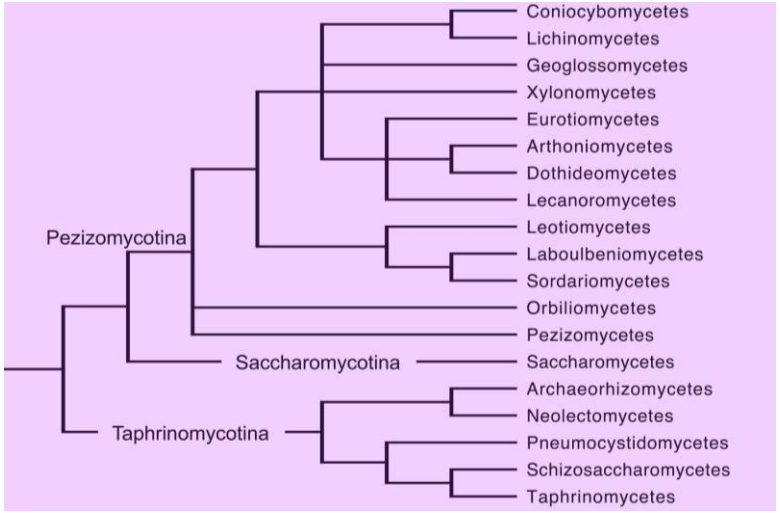
FTOL



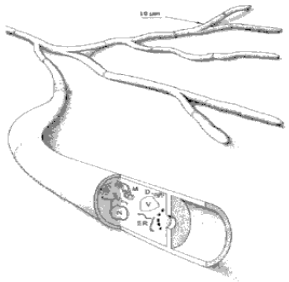
James et al., 2020

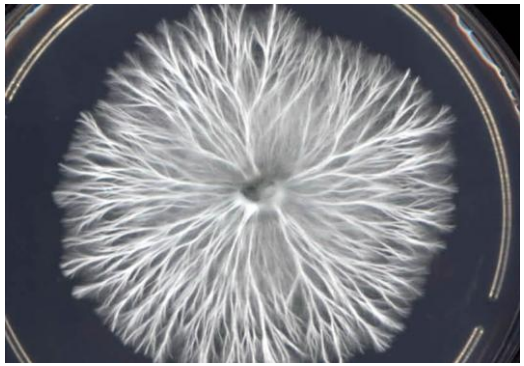
ASCOMYCOTA

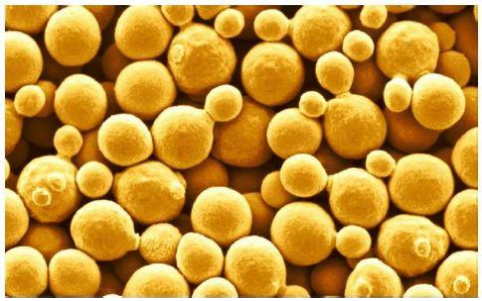
~ 64000 especies

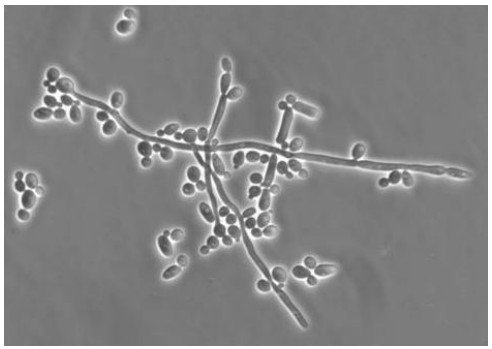


Formas miceliales, unicelulares (levaduras) o dimórficos

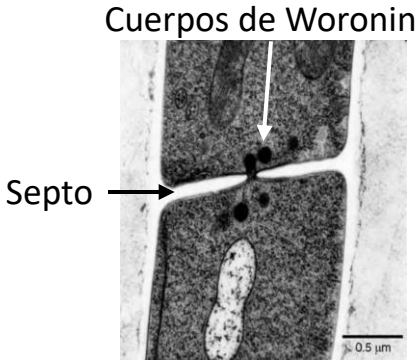


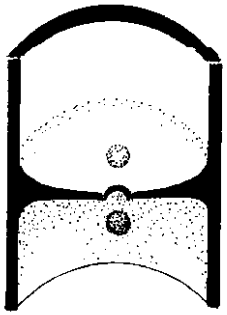




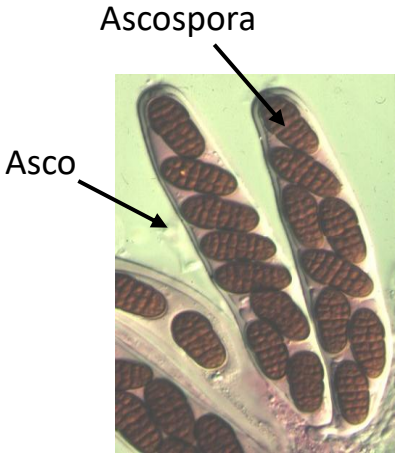


- Micelio septado con **poro central simple** con **cuerpo de Woronin**





- **Ascos** con **ascosporas** de origen endógeno



- Ascos desnudos o en cuerpos fructíferos (**ascocarpo**)

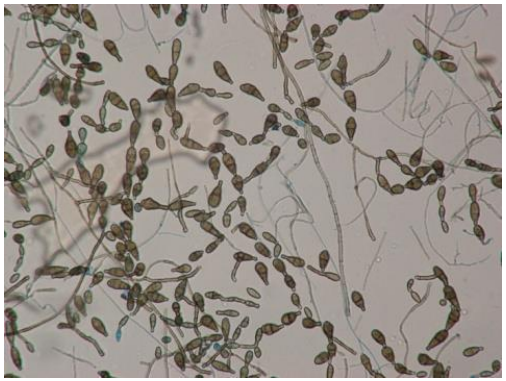
• Son el 75% de los hongos descriptos.

• Ocupan diversos hábitats:
suelo, agua, hipógeos, coprófilos

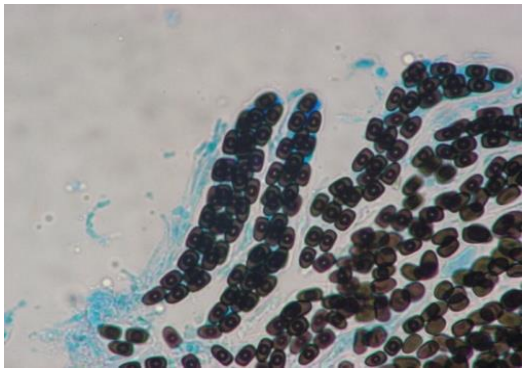
• Importancia: fitopatógenos, patógenos de humanos y animales, contaminantes de alimentos, comestibles, biotecnológica (antibióticos, enzimas), fermentadores (levaduras).

• Algunas especies simbiontes:
líquenes y micorrizas

REPRODUCCIÓN



ESPORAS



ASEXUALES

SEXUALES

MITOSIS

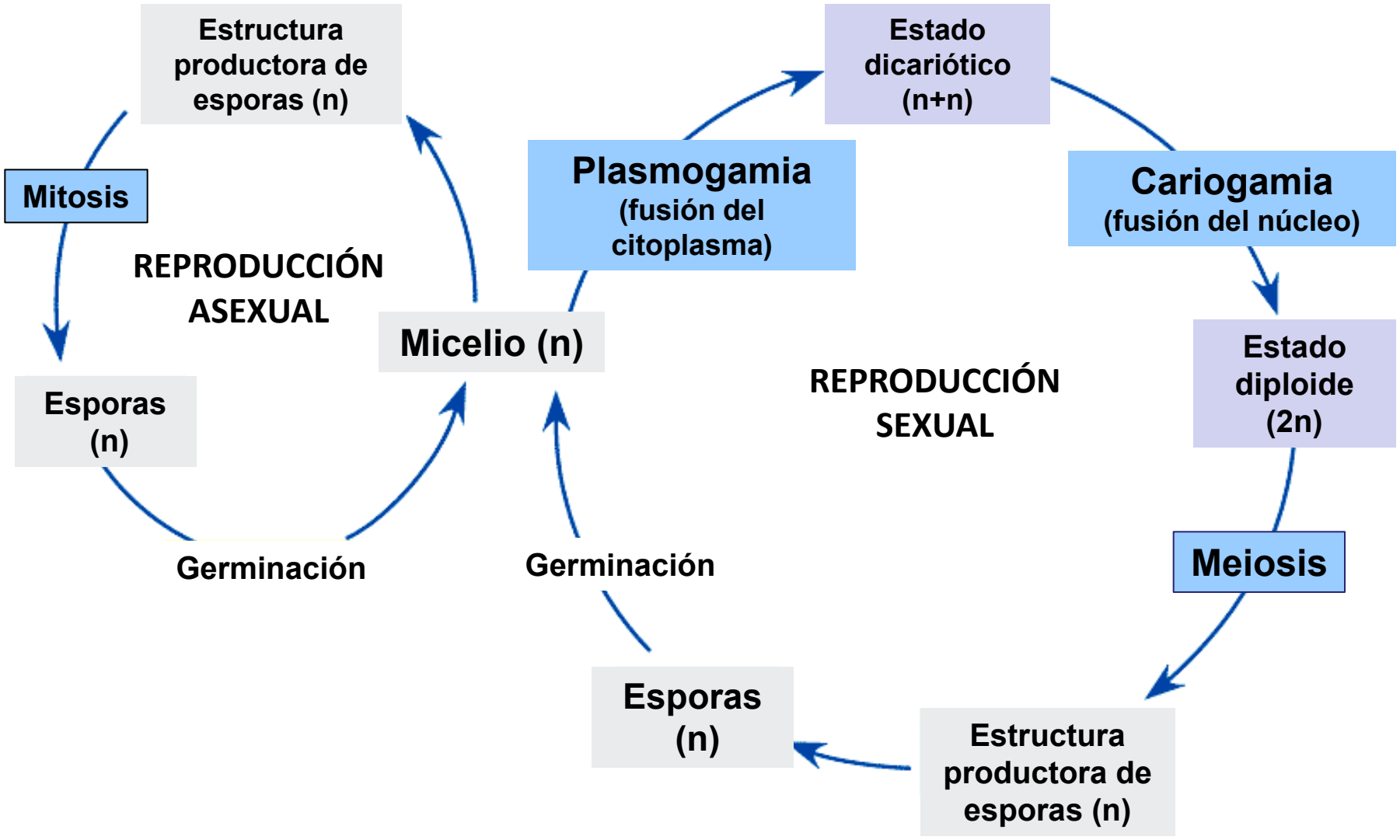
PLASMOGAMIA
CARIOGAMIA
MEIOSIS

ANAMORFO

HOLOMORFO

TELEOMORFO

Ciclo de vida general



REPRODUCCIÓN SEXUAL

• Características: **Cariogamia** y **Meiosis**

• Significado:

- **variabilidad genética** : adaptarse a condiciones ambientales y a los cambios evolutivos

- sobrevivencia por la producción de **esporas sexuales** resistentes

• Se inicia bajo determinadas condiciones ambientales y nutricionales

• Regulada por:

-señales ambientales y nutricionales (luz, fuentes de C y N)

- genéticamente: genes de tipo de apareamiento

REPRODUCCIÓN SEXUAL

- Los hongos pueden clasificarse según su compatibilidad sexual en:

- **Homotálicos**: auto fértiles. No requieren cruzamiento con otro micelio

- **Heterotálicos:** auto estériles. Requieren cruzamiento con otro micelio compatible

REPRODUCCION SEXUAL

1. Plasmogamia
2. Dicariofase o fase dicariótica
3. Cariogamia
4. Meiosis
5. Esporogénesis

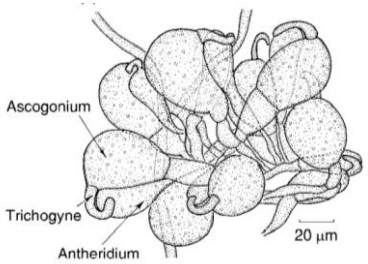
Mucoromycota
zygosporas

Ascomycota
ascosporas

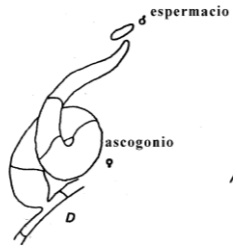
Basidiomycota
basiodiosporas

Formación del asco conteniendo ascosporas

1) Plasmogamia



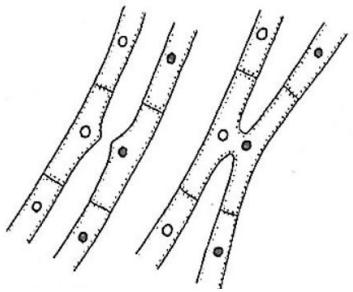
- Contacto entre anteridio (gametangio ♂) y ascogonio (gametangio ♀)



- Espermatización: espermacio (conidio) se adhiere al ascogonio

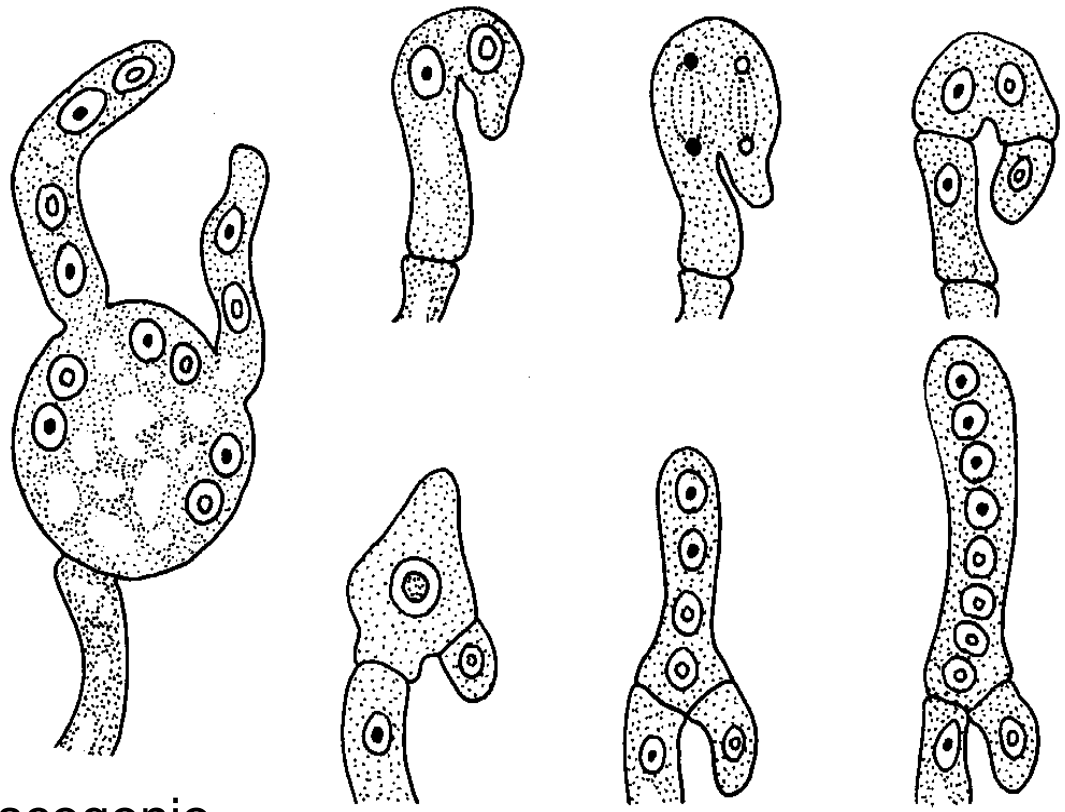
- Copulación gametangial

- Somatogamia



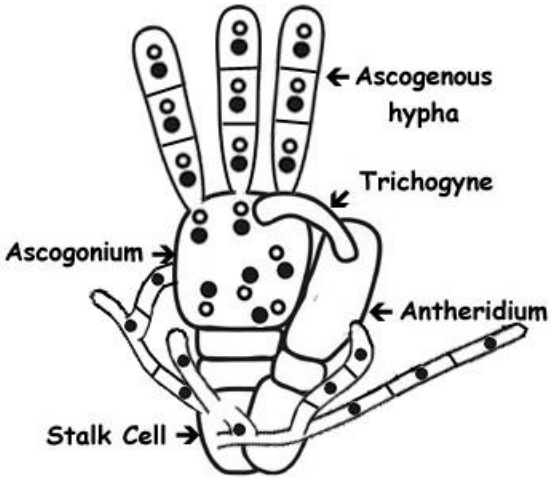
Formación de la hifa ascógena que da lugar a la célula madre del asco

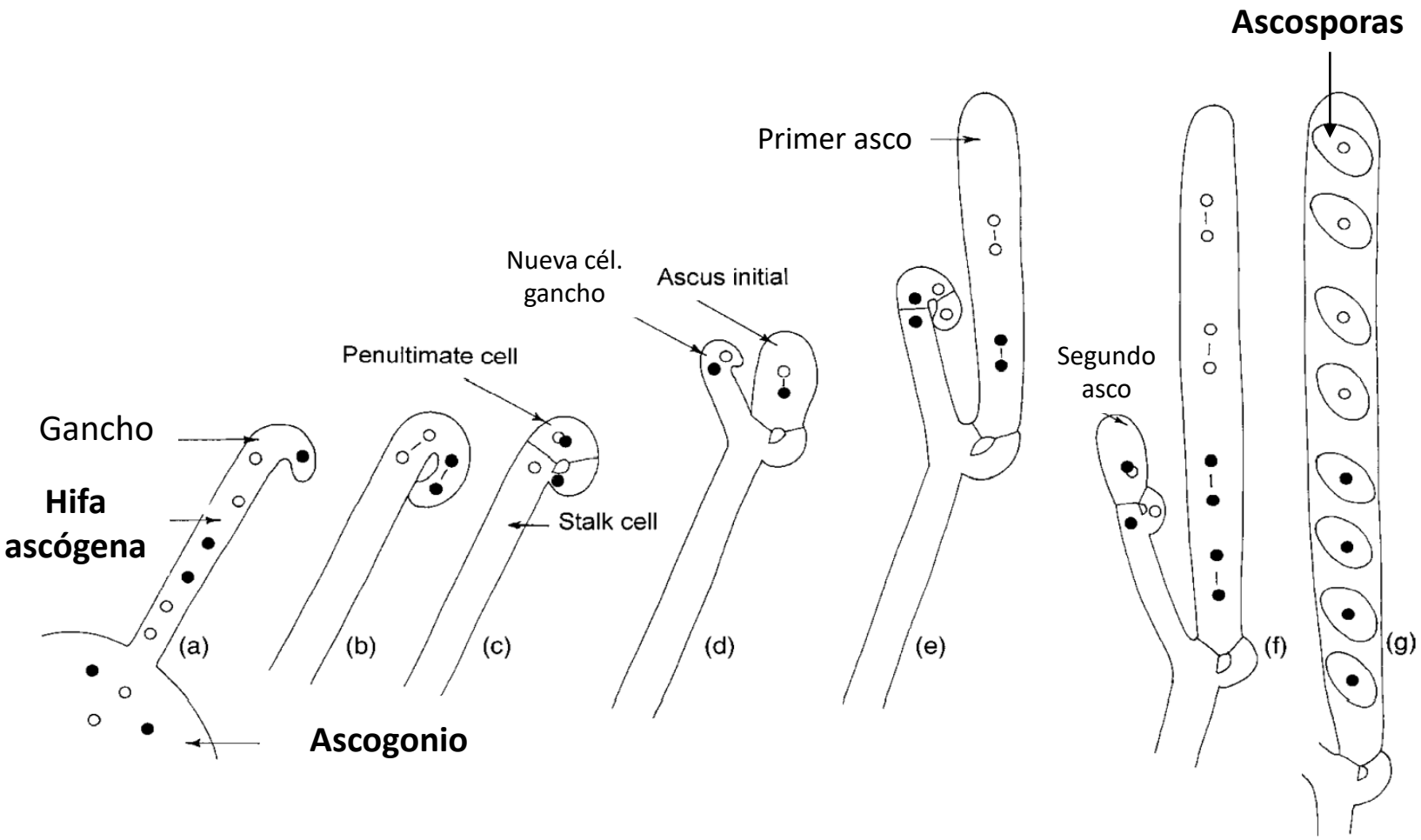
2) Dicariofase o fase dicariótica



Ascogonio

3) Cariogamia **4) Meiosis** Mitosis





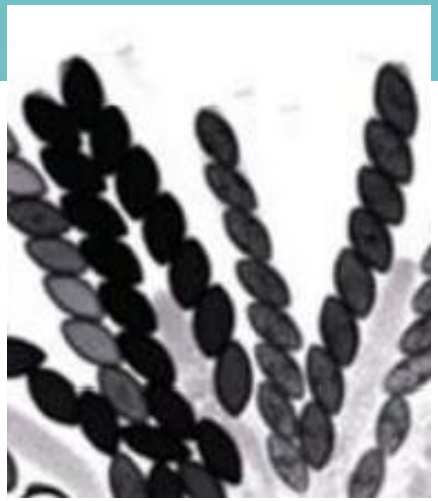
5) Esporogénesis

5) Esporogénesis

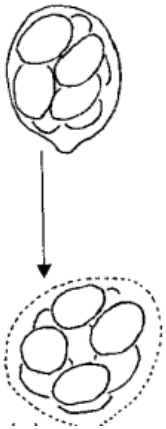
Formación de las ascosporas (ascosporogenesis)

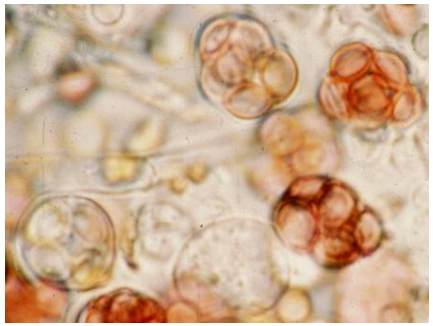
Cada uno de los núcleos haploides se rodea de una pared celular dentro del asco formando las ascosporas

Tipos de ascos y ascosporas

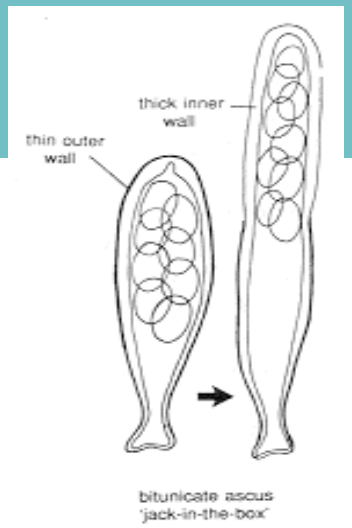


Unitunicados

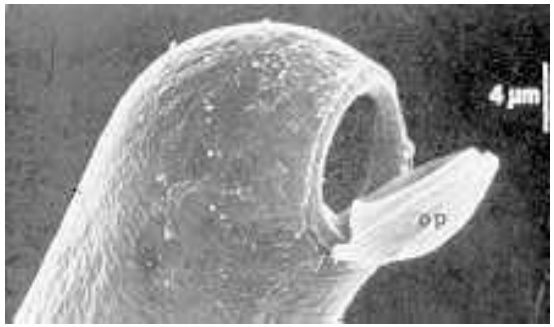




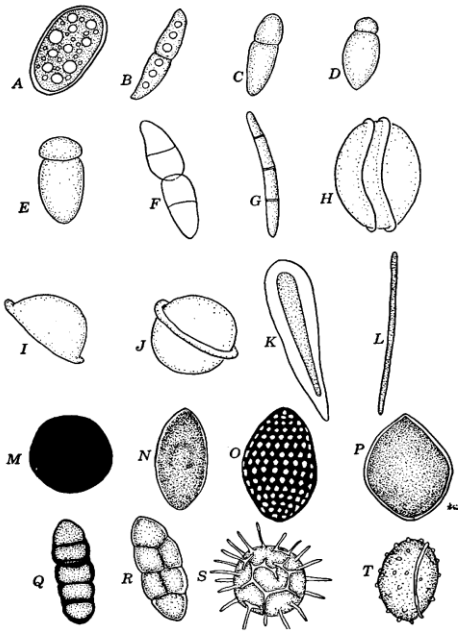
Prototunicados



Bitunicado

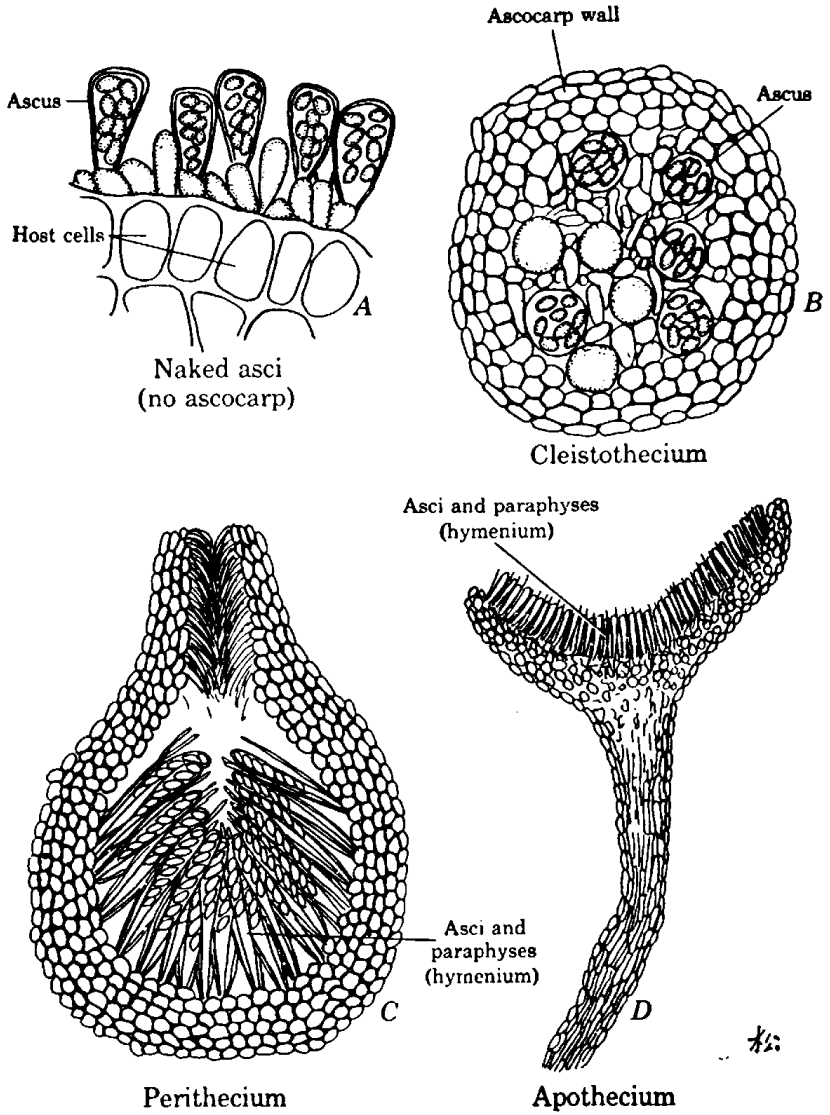


Unitunicado (operculo)



Ascosporas

Cuerpos fructíferos: ascocarpos



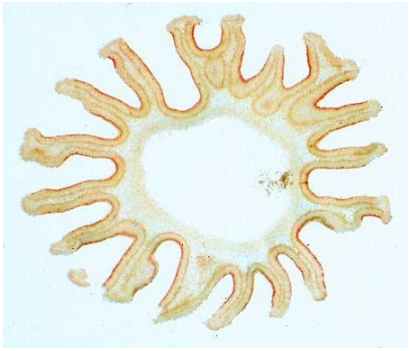
estromático

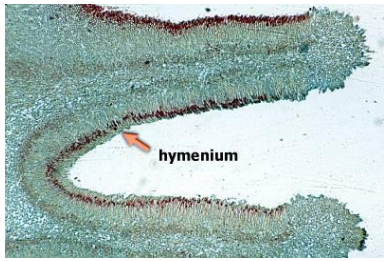
APOTECIO

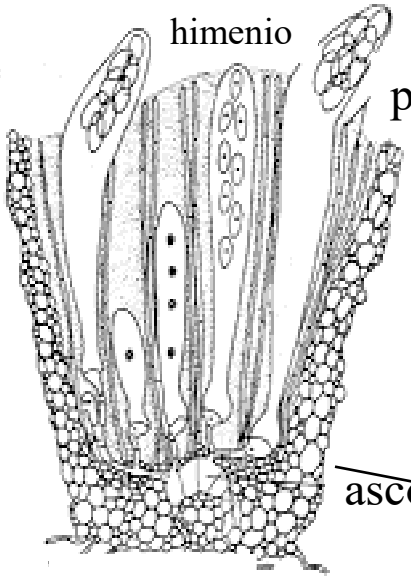
APOTECIO estromático

Sarcoscypha sp.

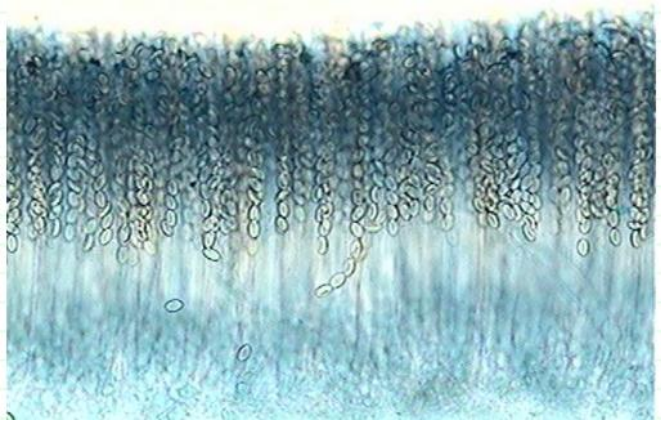
Morchella sp.







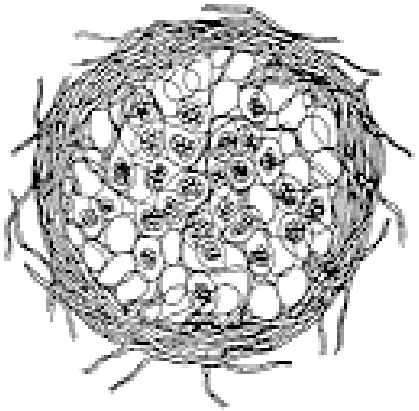
Apotecio

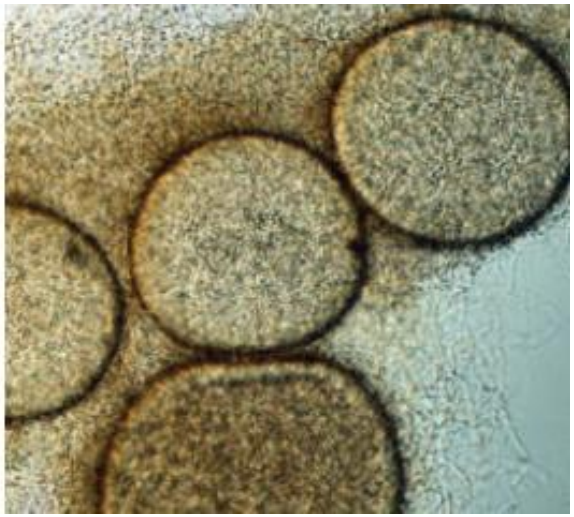


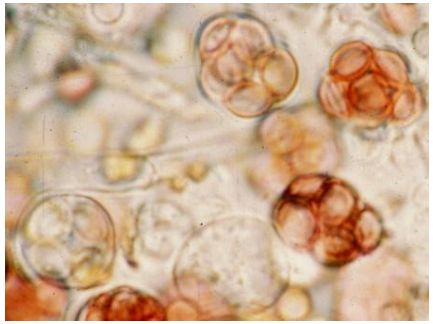
http://micol.fcien.edu.uy/atlas/Ascomycetes.htm

Himenio
ascos
+
paráfisis

CLEISTOTECIO

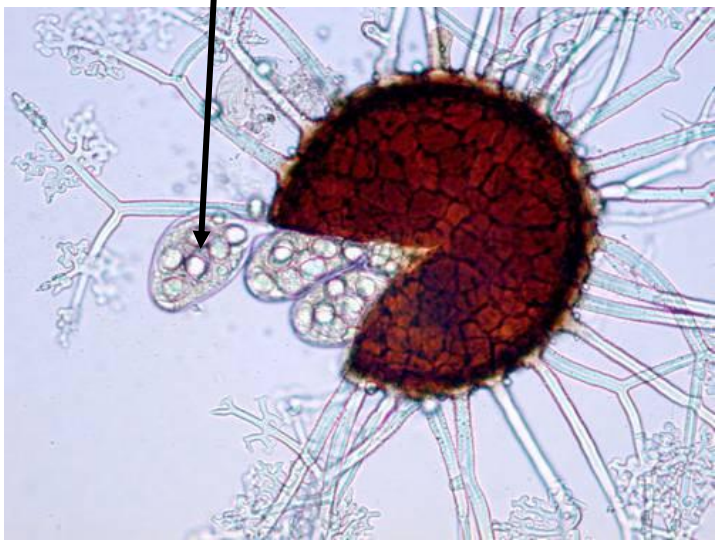




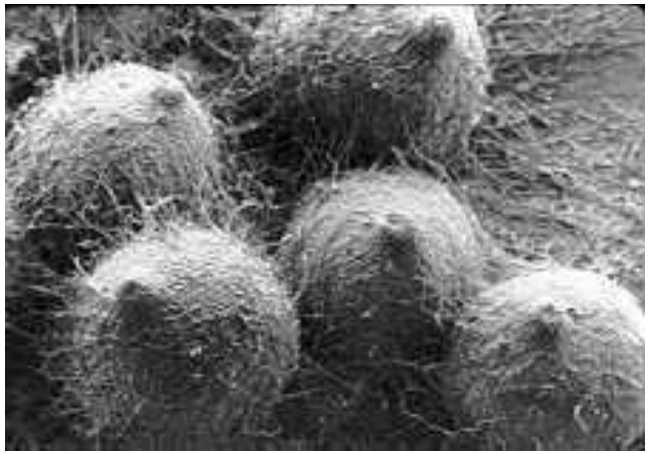


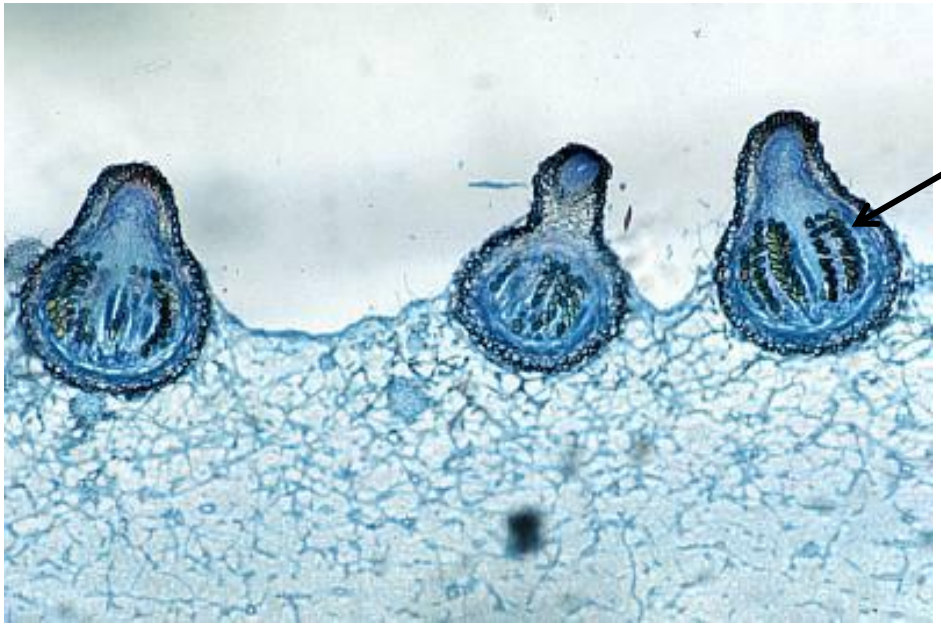
Ascos

Ascos globosos evanescentes

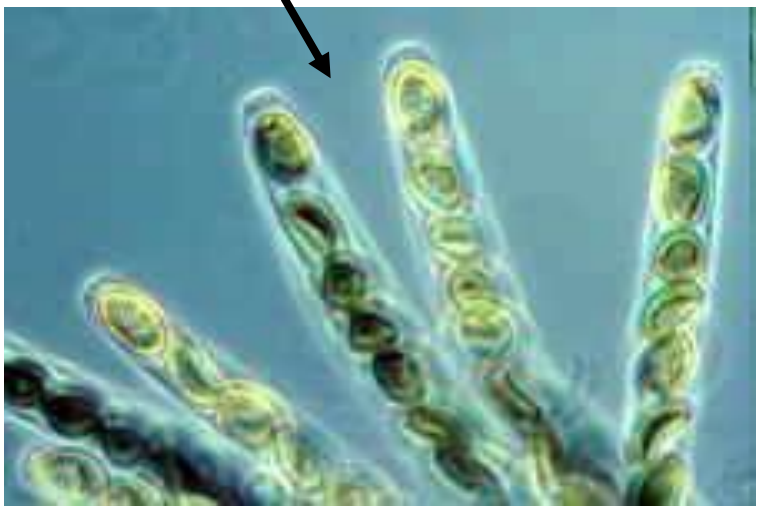


PERITECIO



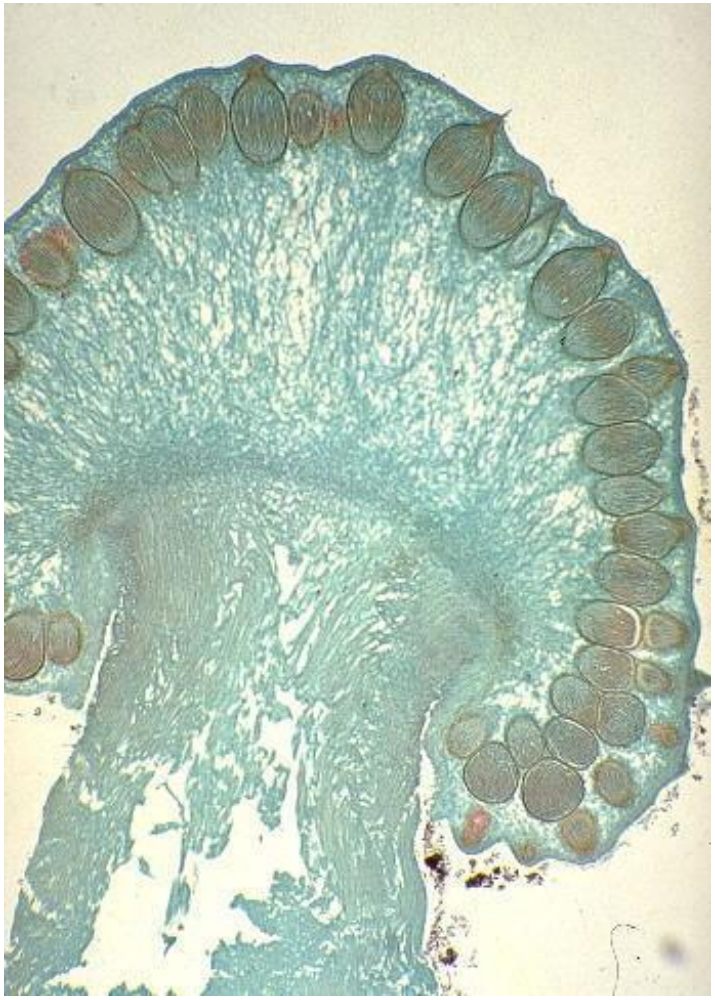


Ascos con ascosporas

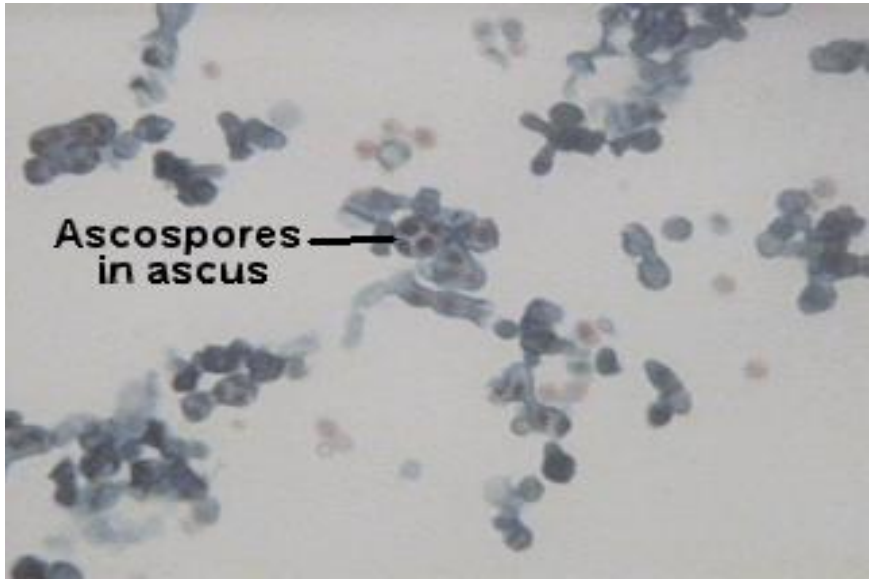


Claviceps purpurea

Peritecios en estroma

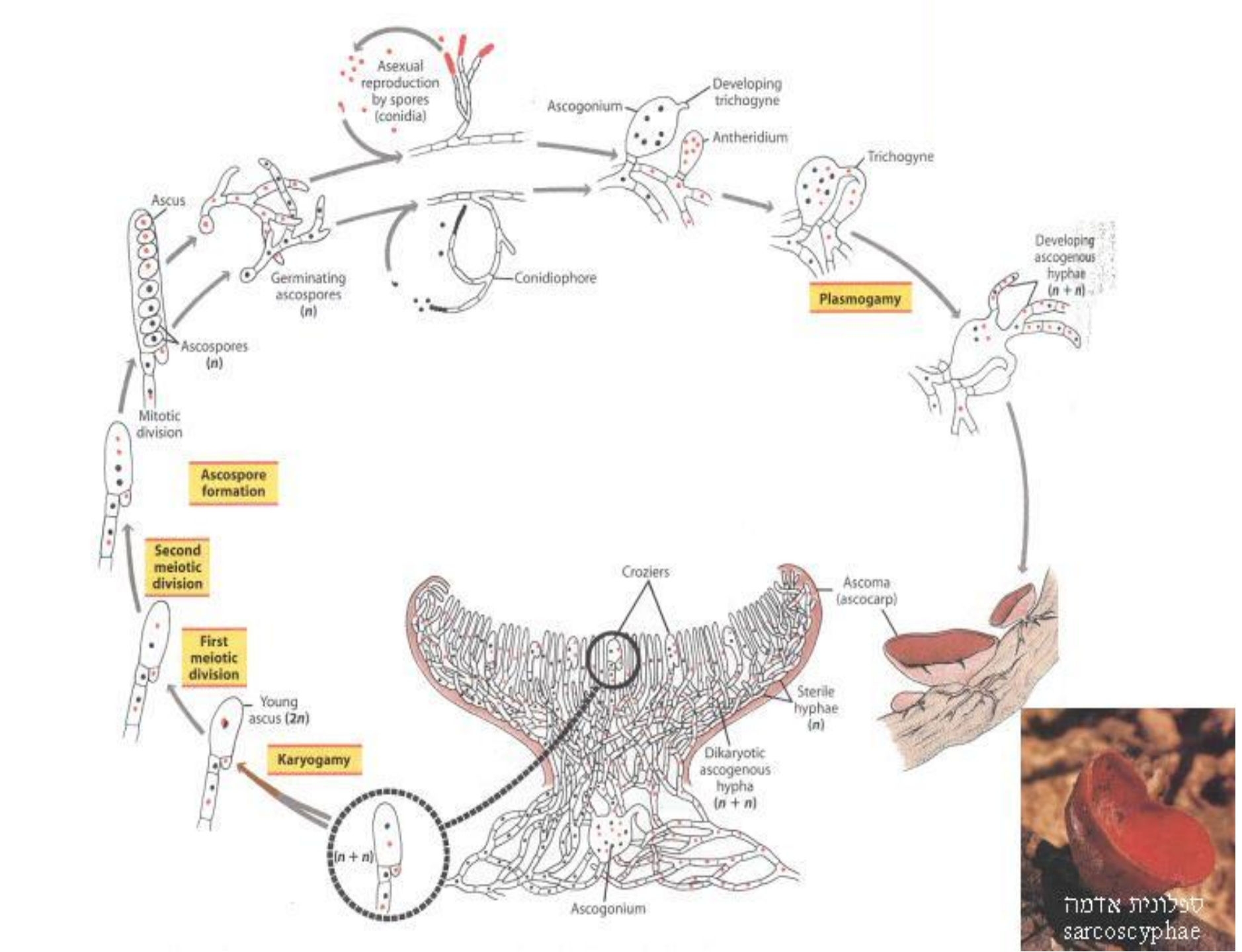


Saccharomyces cerevisiae



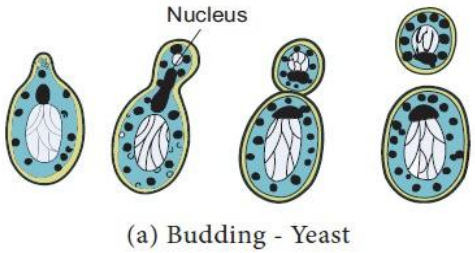
ASCOS DESNUDOS

Taphrina deformans


Asexual reproduction by spores (conidia)
Ascogonium
Developing trichogyne
Antheridium
Trichogyne
Ascus
Germinating ascospores (n)
Conidiophore
Plasmogamy
Developing ascogenous hyphae (n + n)
Ascospores (n)
Mitotic division
Ascospore formation
Second meiotic division
First meiotic division
Young ascus (2n)
Karyogamy
(n + n)
Croziers
Ascoma (ascocarp)
Sterile hyphae (n)
Dikaryotic ascogenous hypha (n + n)
Ascogonium
פלונית אדמה
sarcoscyphae

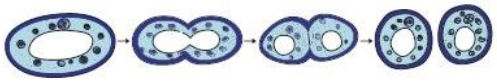
REPRODUCCIÓN ASEXUAL

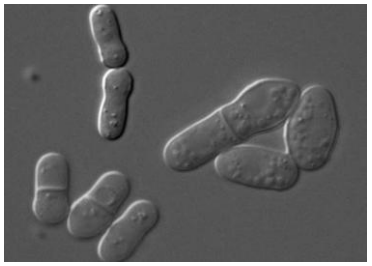
-Gemación



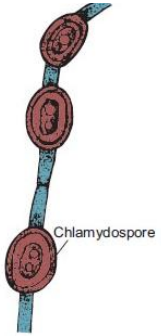
(a) Budding - Yeast

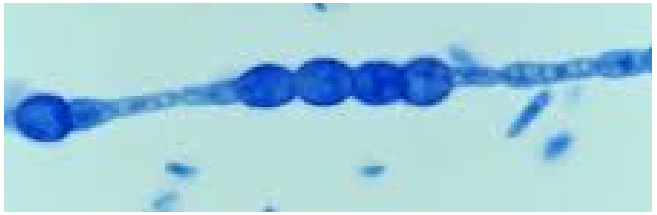
-Fisión


(b) Fission - Yeast

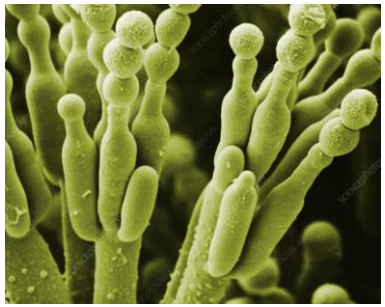


-Clamidosporas





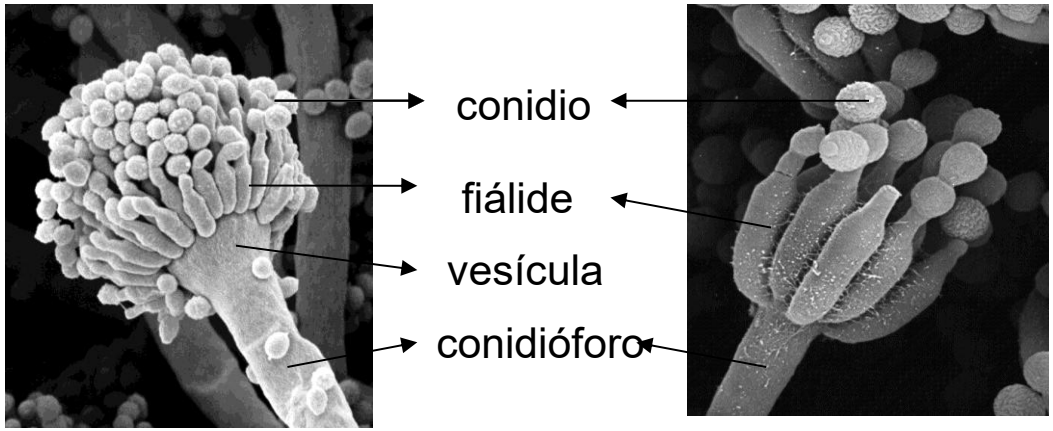
-Conidios



Conidio: espora asexual

Célula conidiógena: cél. hifal en la cual se forma el conidio

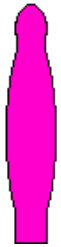
Conidióforo: hifa simple o ramificada que contiene la o las células conidiógenas

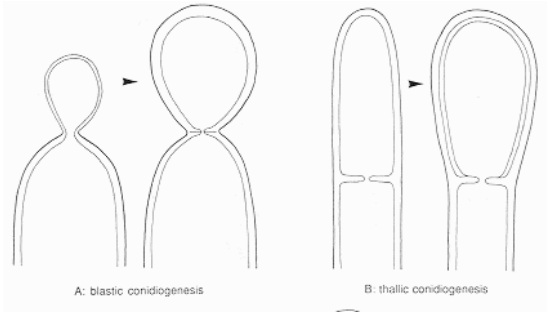


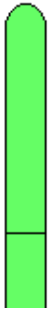
Conidiogénesis: forma de producción de los conidios puede ser:

Blástica: formación de conidios a partir de una cel. conidiógena

Tálica: fragmentación de una hifa en conidios



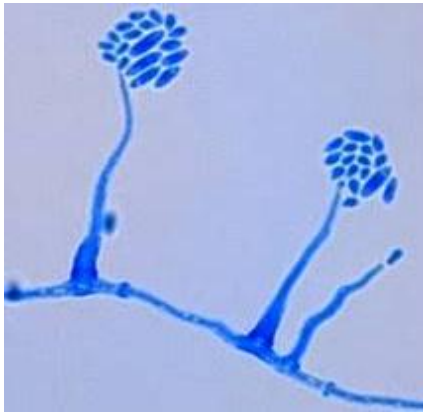


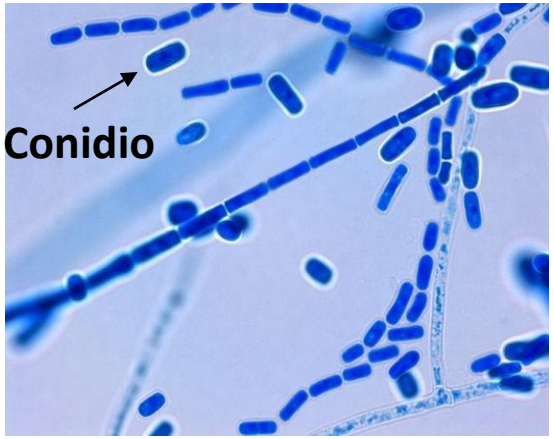


Conidios en cadenas

Summerell, Salleh y Leslie, 2003

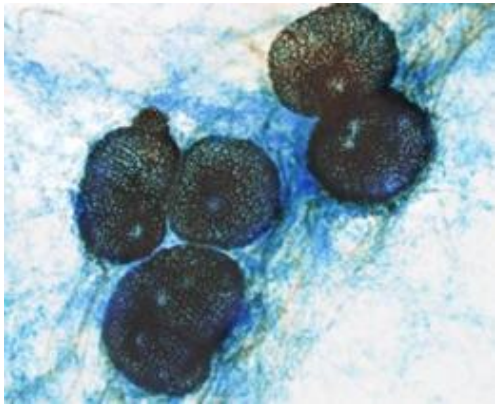
Conidios en cabezuelas



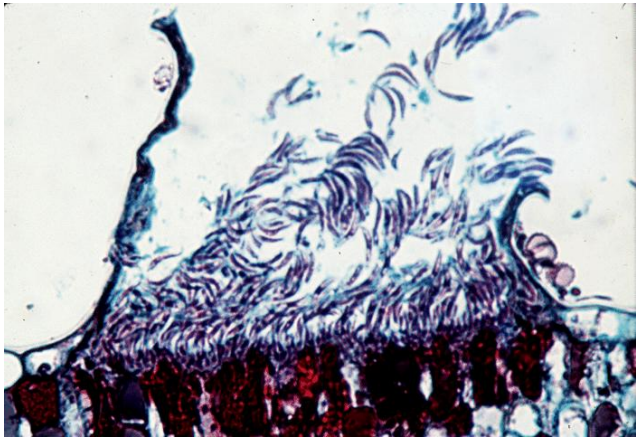


Agrupamiento de células conidiógenas

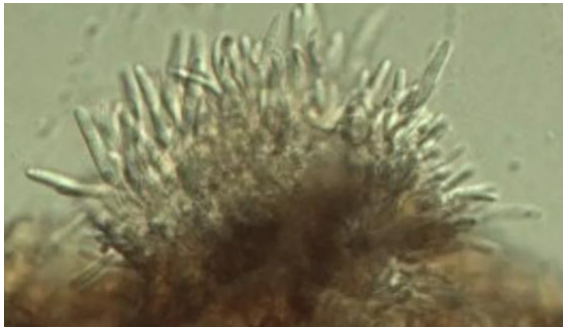
Coremio



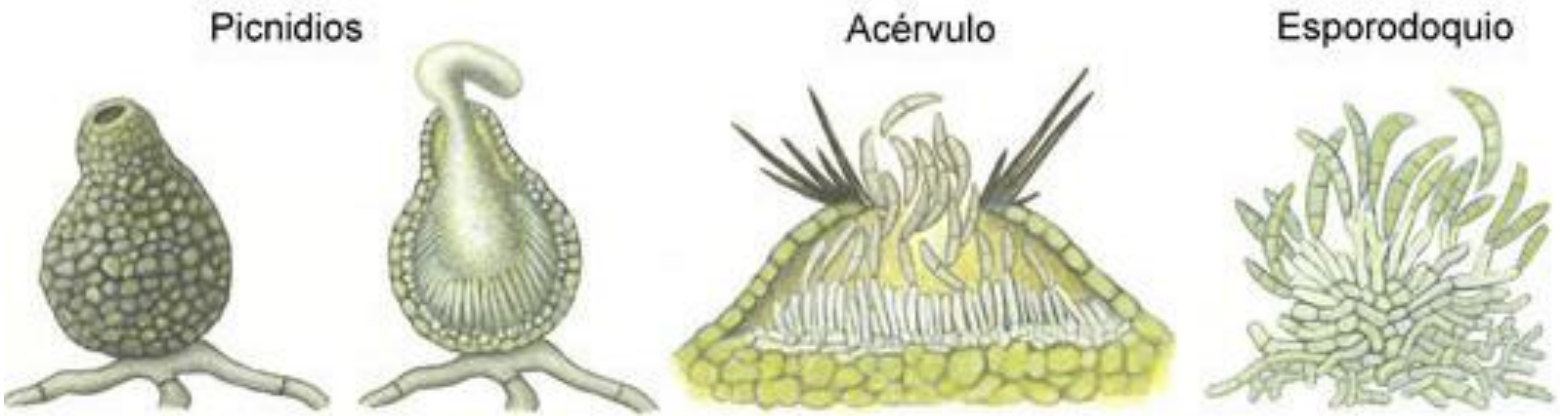
https://www.inspq.qc.ca/en/moulds/fact-sheets/phoma-glomerata



http://www.geocities.ws/hongosgratis/2/deuteromycotina.html



https://es.slideshare.net/olgamasbas/estructura-hongos



Sosa, 2015


MUCHAS GRACIAS