

CHS3403 PLANT PATHOLOGICAL PRINCIPLES OF CANNABIS AND HERBS

3. Diseases of cannabis and herbal plants caused by fungi

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Topics

1. fungus

2. Fungal classification, plant etiology

3. Symptoms of fungal diseases

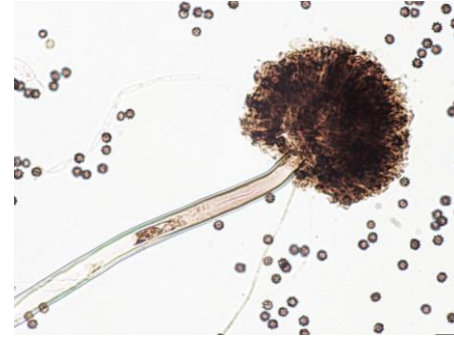
4. Occurrence of disease



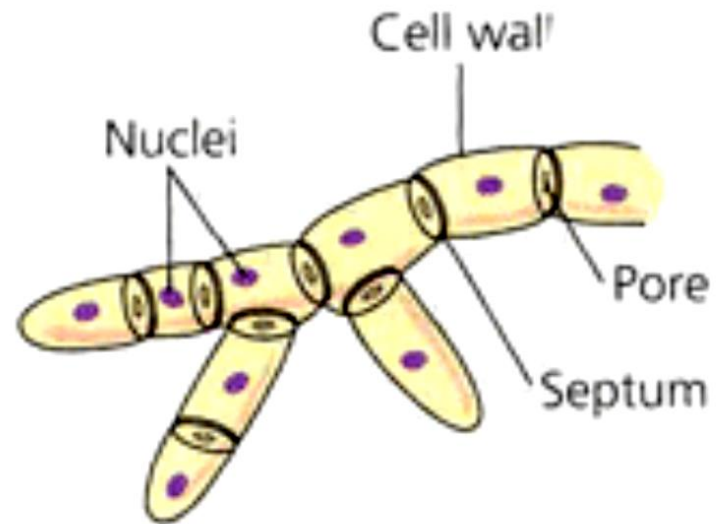
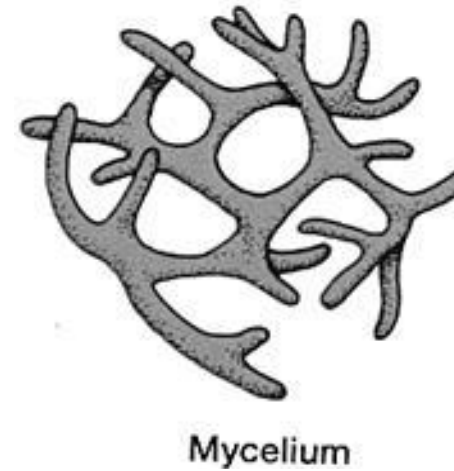
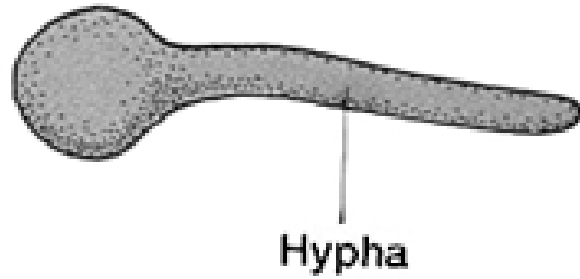
1. Fungus

Characteristics of kingdom creatures

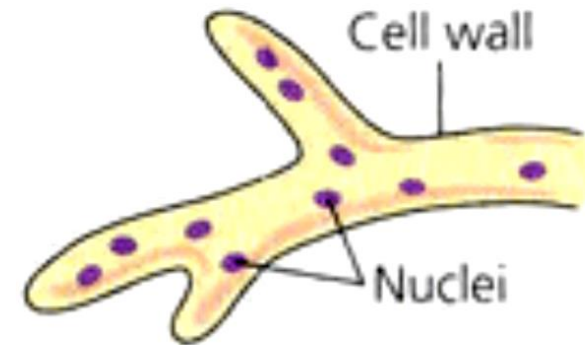
1. These cells are eutectic cells with nuclear membranes.
2. It does not contain chlorophyll and is an organism that decomposes organic matter of decay or parasites, causing disease to plants, animals or humans.
3. The cell wall is true fungus or pseudofungus.
4. There are single cells and small fibers, called Hypha, called mycelium. The characteristics of fibers are divided into: 2 types
 - 4.1 Fiber with partition
 - 4.2 Amorphous fiber (amorphous fiber or eutectic fiber)



Characteristics of kingdom creatures



(a) Septate hypha



(b) Coenocytic hypha

Fungal reproduction

Fungi can reproduce in two ways:

1. Sexual reproduction through fiber breakage, germination or cell division. This type of reproduction can be called Plant reproduction and non-sexual spore production, such as:

1.1 Fiber fragments

1.2 Billing or germination

1.3 Fission is divided into two cells.

1.4 Chlamydia spores form thick-walled spores in the middle or at the end of the fiber.

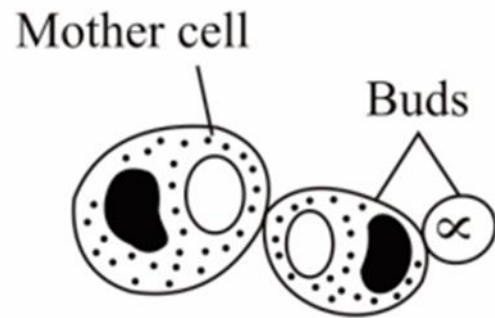
1.5 Production of non-sexual spores, such as Zoospore, Sporangiospore and Conidiospore

Fungal reproduction

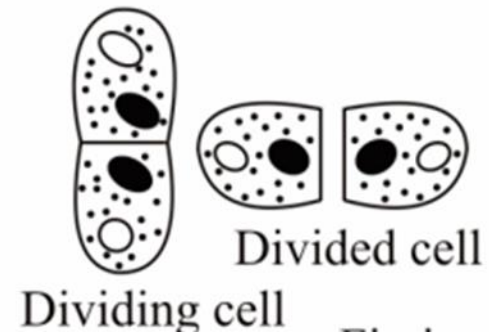
1. Asexual reproduction



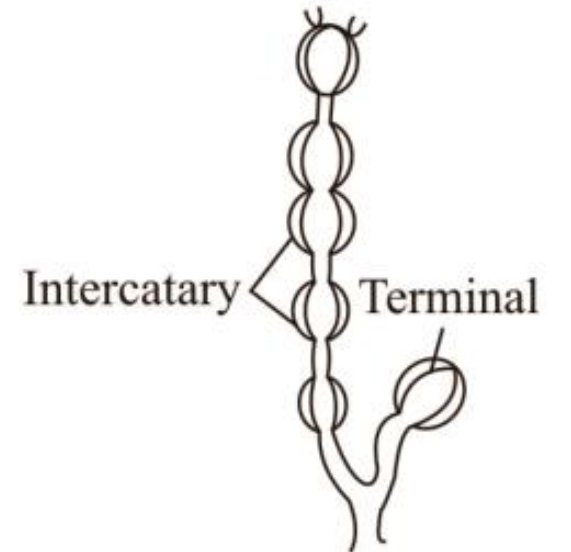
Fragmentation



Budding



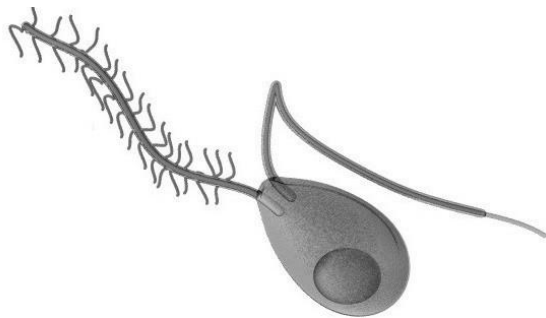
Fission



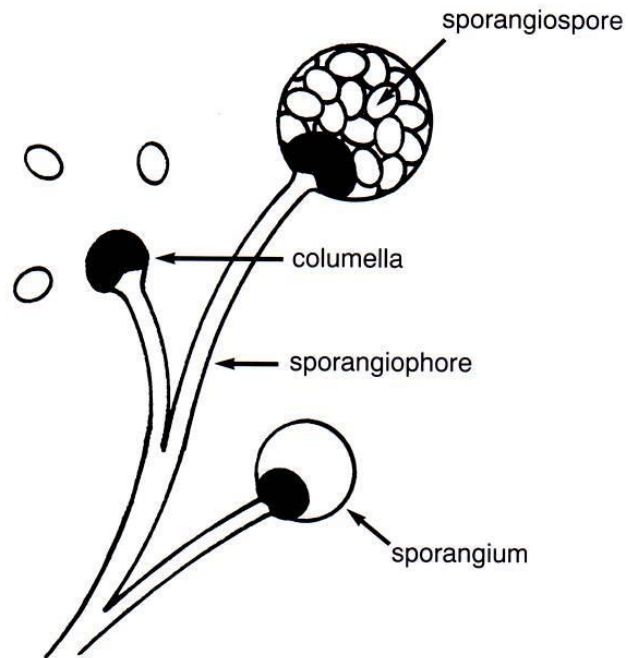
Chlamydo-spore

Fungal reproduction

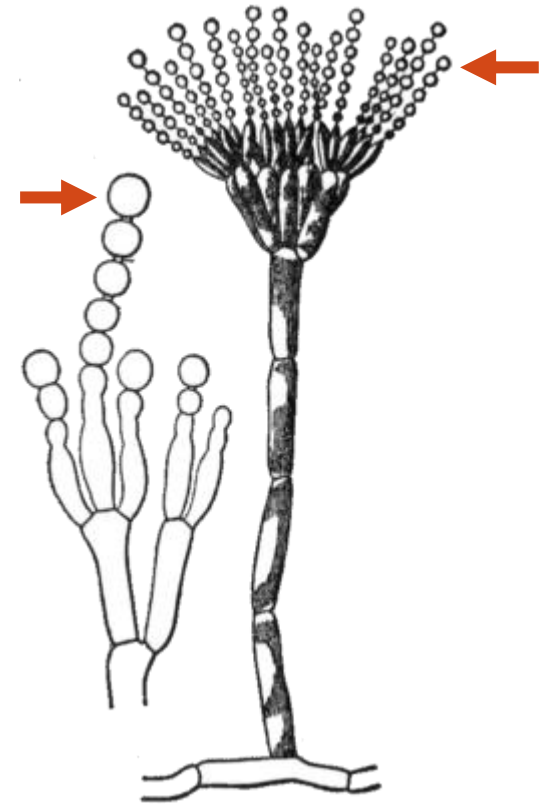
1. Asexual reproduction



Zoospore



Sporangiospore

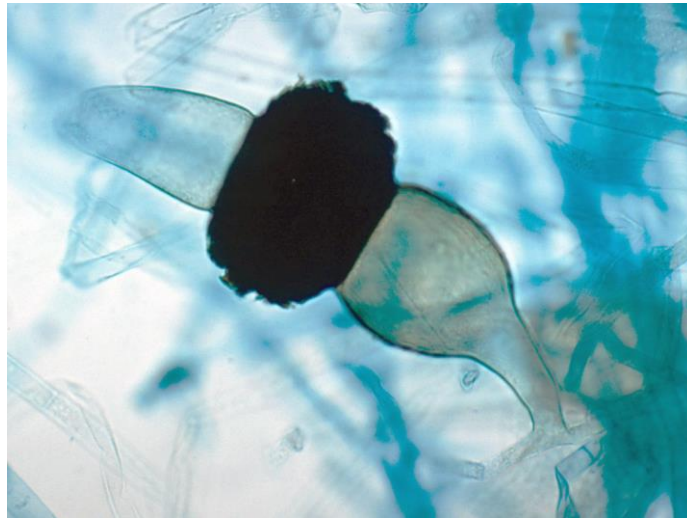


Conidiospore

Fungal reproduction

Fungi can reproduce in two ways:

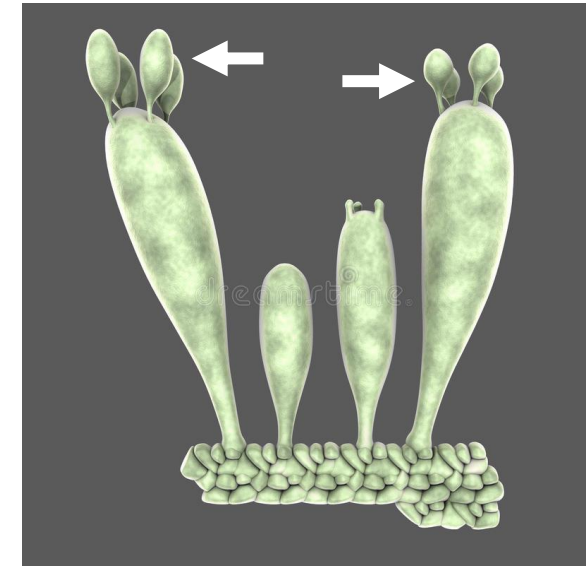
2. Sexual reproduction by producing gender-based spores, such as:



Zygospor



Ascospore

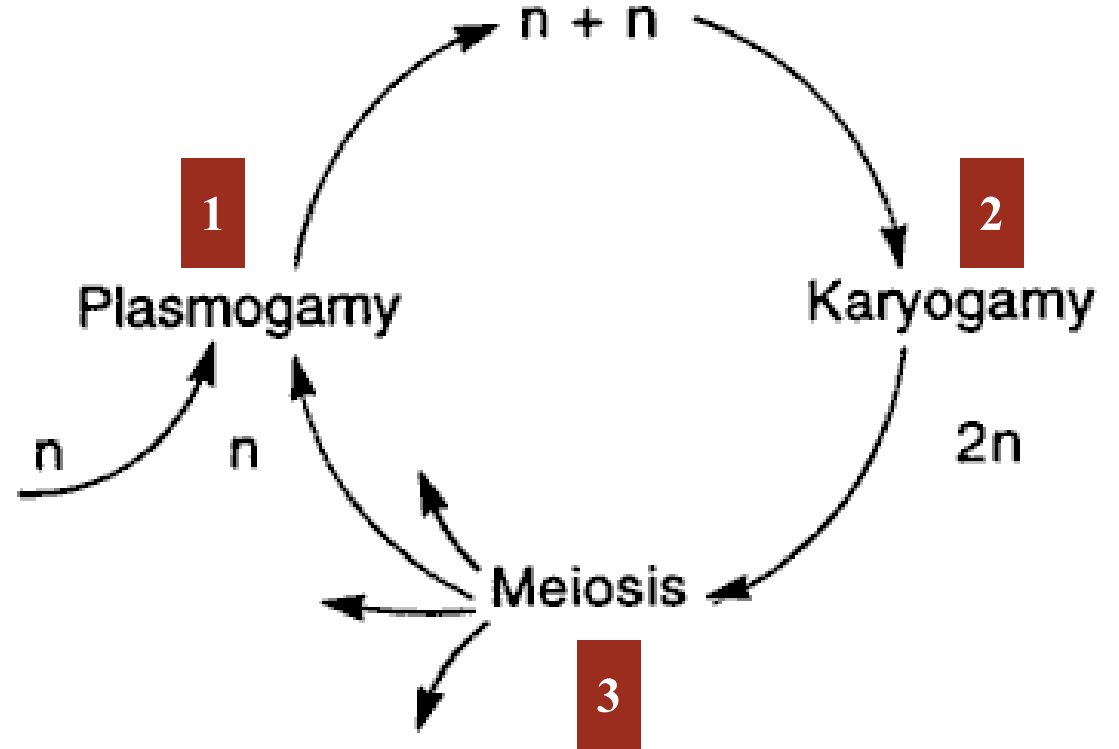


Basidiospor

Fungal reproduction

Sexual transmission is divided into three stages:

1. Plasmogamy is the nuclear match of male and female ($n+n$).
2. Karyogamy is a mixture between two nuclei to obtain $2n$ zygote.
3. Meiosis divided the mixed nucleus from $2n$ to 4 sporadic nuclei.



The viability of plant pathogenic fungi

1. Living in soil
2. Living in soil and plant residues.
 - It is saprophyte fiber.
 - It is infected in the form of chlamydia spores, coccidiosis, oospores and sclerosis.



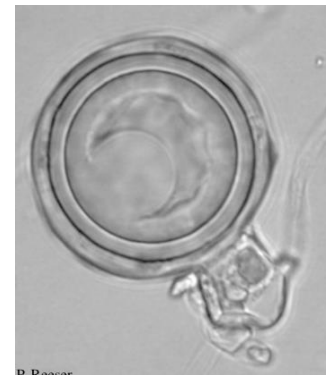
saprophyte



chlamydospore



conidium



oospore



sclerotium

The viability of plant pathogenic fungi

3. Living in seeds

- The mycelium or spore is located on the surface of the seed.
- The fiber is in the embryo.

4. Living in other living crops, off-season or weeds.

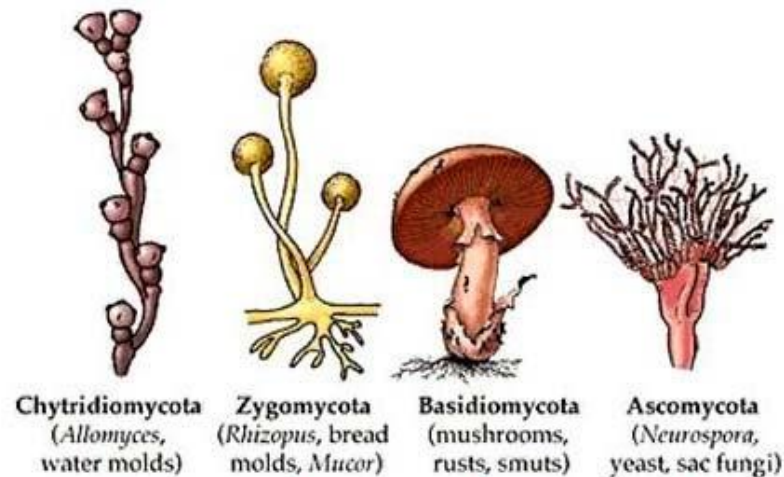
- Most bacteria can live in weeds and grass in the off-season.



2. Identification of causative agents of plant diseases

The kingdom of Fungi can be divided into four phyla

1. Zygomycota produces asexual spores.
2. The mycelium produces spores.
3. Phylum Basidiomycota is a remote form that forms basal spores.
4. Ascomycota (Phylum Ascomycota), terminal stage, produces round spores.



3. Symptoms of fungal diseases

According to the type of pathogen and plant, the fungus causing plant disease is manifested as local or systemic symptoms. It is usually manifested as:

1. Necrosis syndrome
2. Malnutrition and hyperplasia
3. Dysplasia and malnutrition



3. Symptoms of fungal diseases

1. Common necrosis symptoms are as follows:

-Due to cell death, mottled leaves are local wounds on plant leaves.

-Drying or burning is a symptom on leaves, branches and inflorescences, which will quickly turn brown and die.

-Ulcer is caused by local cell death, which usually leads to bruise and dampness of the trunk under the wound.

-The rotten roots will destroy the root system of the whole plant.

-Rot and dry, because soft cells or tissues are separated. Fruits, roots, heads and plump leaves are usually found.

3. Symptoms of fungal diseases

1. Common necrosis symptoms are as follows:

- Anthrax is a wound caused by cell death, dents, leaves, stems, fruits and flowers.**
- A scab is a local wound, usually slightly convex or concave, and forms a scab.**

The above symptoms may cause plant growth retardation, such as rust, mold, wilt, etc.

3. Symptoms of fungal diseases

1. necrosis



เน่าเละ



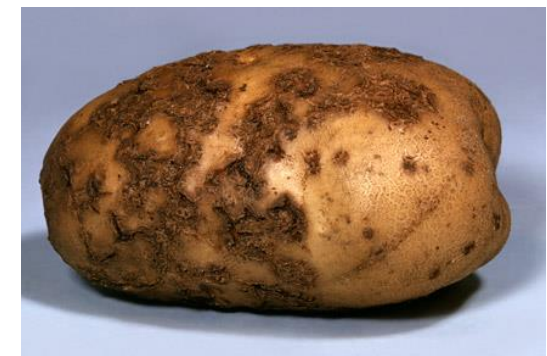
ใบจุด



แผลบวมที่เกิดจากเซลล์ตาย



แผลเกิดจากเซลล์ตายเฉพาะแห่ง



แผลแตกเป็นสะเก็ด

3. Symptoms of fungal diseases

2. Hypertrophy & Hyperplasia



รากบวม



ปุ่ม ปม



หูด



ใบหด



แตกพุ่มแฉ่

3. Symptoms of fungal diseases

3. Hypoplasia & Hypotrophy



โรคเหี่ยว



โรคราสนิม



โรครากและโคนต้นเน่า



โรคเขม่าดำ



โรคราแป้งขาว



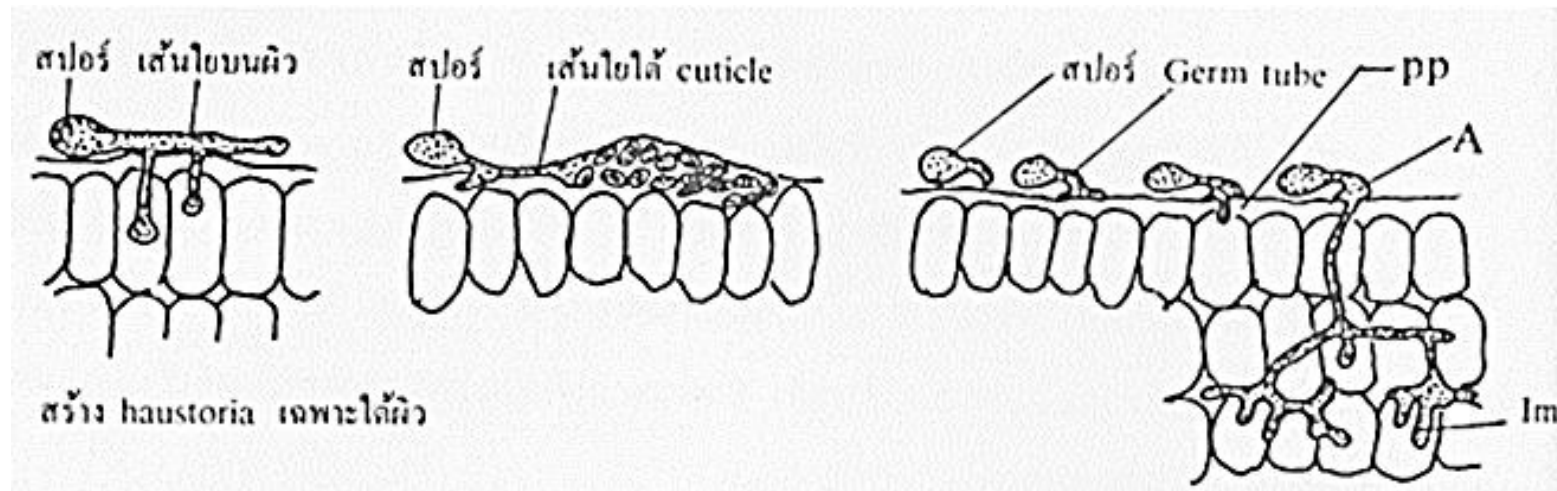
โรคแอนแทรคโนส



โรคโคนเน่าระดับดิน

4. Occurrence of disease

The fungus enters the plant through the wound. Through natural openings or directly through the cuticle and epidermis after the infection is in the plant. The infection uses plant food for its own growth and propagation. the food that the yeast invades Normally sufficient for the use of plant cells alone. This is why the cells of the host plant are growing abnormally. Symptoms of the disease occur locally or throughout the plant.



**THANK
YOU!**

