

علم الأحياء الدقيقة
Microbiology
Introduction to Mycology

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FUNGI

الفطريات تنقسم إلى قسمين:

Two divisions in fungi.

الفطريات البيضية

Myxomycota

(slime moulds)

تفتقد للجدر الخلوية خلال معظم دورة حياتها

lack cell walls during most of
their life cycle

الفطريات الحقيقية

Eumycota

(true fungi)

تمتلك جدر خلوية صلبة

possess rigid cell walls

Division Eumycota-True Fungi

- **This group of organisms is characterized by the following characters :**

The fungal body or **thallus** is known as **mycelium**, which is composed threads known as **hyphae** (or non-separated).

cell wall in the majority of fungi is chitin.

- **Cellulose** is usually absent from walls of most fungi.
- Fungi are **heterotrophic** and **aerobes**.
- The reserve food material is usually **glycogen** but never starch.

- With regard to the mode of nutrition, fungi can be divided into the three following types :
 - a) Parasitic fungi.
 - b) Saprophytic fungi.
 - c) Symbiotic fungi.

Division Eumycota-True Fungi

A) **Parasitic fungi.** They are two types :

- **Obligate parasites**, which live and grow only on their living host, e.g. *Puccinia graminis* on wheat (rusty infection).
 - **Facultative parasites**, which live usually as saprophytes on dead organic matter in the soil, but they can parasitize their hosts if found nearby them, e.g. *Fusarium* sp. which causes diseases to many plants.
- The parasitic fungi can infect not only higher plants, but also insects such as house flies, which can be killed by such infection. Some skin diseases of humans are due to fungal infections.

Division Eumycota-True Fungi

B) **Saprophytic fungi** can be also divided into :

- **Obligate saprophytes**, which live only saprophytically on dead organic matter, i.e. they do not infect living plants or animals, e.g. *Rhizopus*.
- **Facultative saprophytes**, which usually live parasitically, but they can behave as saprophytes under certain conditions, e.g. Smut fungi.

C) **Symbiotic fungi**, which live in association with other organisms and there is a mutual benefit between them.

Lichens

(Fungus and an Algae).

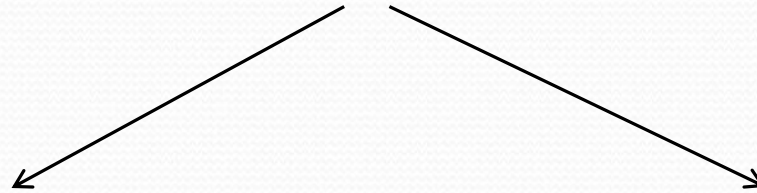
Mycorrhizas

(Fungi and roots of higher plants)

Division Eumycota-True Fungi

Mycorrhizas

(Fungi and roots of higher plants)



A) Ectophytic mycorrhiza,

The fungus forms an external investment of the root in the form of a crown of hyphae without penetrating into the cells other than those of the epidermis .

B) Endophytic mycorrhiza,

The fungal hyphae penetrate the inner parts of the roots and have little connection with the mycelium in the soil.

Classification of Eumycota

- **True fungi** are grouped into five classes based on their method of reproduction, these classes are:

Zygomycetes

- Sexual gametangia are similar
 - Hyphae are coenocytic.

Oomycetes

- Sexual gametangia are dissimilar, being distinguished into female gametangia or oogonia and male gametangia or antheridia.
 - Hyphae are coenocytic.

Basidiomycetes

- Spores are exogenous, i.e. produced externally on basidia.
 - Hyphae are septated.

Ascomycetes

- Spores are endogenous, i.e. produced inside special sacs called asci.
 - Hyphae are septated.

Deuteromycetes (Imperfect fungi)

- Its perfect stage or its mode of sexual reproduction is not yet known until now.
 - Hyphae are separated .

QUESTIONS??

