

# Dimorphic fungi

Dimorphic fungi are able to grow in two stages: up to 30 ° C, the **fibrous** form grows, and at 35-37°C the **yeast** form grows. Both forms are the cause of infections penetrating mucous membranes and skin, and the yeast form also causes systemic infections.

## Cultivation

The growth of dimeric fungi is slow, not blocked by *cycloheximide* which is added to the culture medium. Hyphae are **fibrous** forms, fine, arranged in parallel. It is also possible to provoke a change from one phase to another.

## Proof

We demonstrate dimorphic fungi **indirectly**, most often by ELISA, double immunodiffusion or complement fixation reaction.

## Shortcuts

Dimorphic fungi include several representatives: ***Histoplasma***, ***Blastomyces***, ***Coccidioides***, ***Sporothrix*** or ***Penicillium marneffei***.

### ***Blastomyces***

The main representative is **B. blastomycosis-causing dermatitis**, belonging to endemic diseases (the USA, along the Mississippi, southern Canada).

A fibrous form grows in the soil, which enters the body by inhalation of dust with conidia, and therefore always causes primary **lung disease**. Dissemination and secondary impairment manifest themselves in immunocompromised individuals.

More often, however, there are **skin forms** that enter the body through injured skin.

### ***Histoplasma***

**H. capsulatum** occurs along major rivers in the United States. There are 3 varieties: capsulatum, dubosii (Africa) and farcinimosum, which causes equine and mule lymphadenitis and is therefore epizootic. The overall diseases are the same as in Blastomyces.

### ***Coccidioides***

**C. immitis** occurs in the USA. Requires shorter cultivation than other dimorphic fungi. The fibrous form breaks down into highly infectious **arthroconidia** and is the cause of laboratory infections. It causes **coccidioidomycosis**, which manifests itself differently in immunocompromised people and people infected with AIDS. In individuals with weakened immunity, it is asymptomatic in 60%, in 2% it turns into a chronic form. AIDS-infected individuals have a primary lung injury with coughing up purulent sputum.

### ***Penicillium marneffei***

*Penicillium spp.* is one of the filamentous fungi that grows rapidly and resembles a brush (hence the name brush mould).

**P. marneffei** is pathological to humans. This is the first species that is able to cause infection, especially in individuals infected with AIDS (lungs, liver, skin). The reservoir is bamboo rats in Laos, Thailand, Vietnam. It is a dimorphic fungus because it forms single-celled yeast-like formations in the affected tissue. Their conidia worsen the condition of allergy sufferers and asthmatics.

## Links

### Related articles

- Overview of fungal intoxication
- Candidosis
- Dermatomycoses

### Sources

- VOTAVA, Miroslav. *Lékařská mikrobiologie speciální*. 1. edition. 2003. ISBN 80-902896-6-5.
- BEDNÁŘ, Marek – SOUČEK, Andrej – FRAŇKOVÁ, Věra. *Lékařská mikrobiologie : Bakteriologie, virologie, parazitologie*. 1. edition. 1996. ISBN 8023802976.