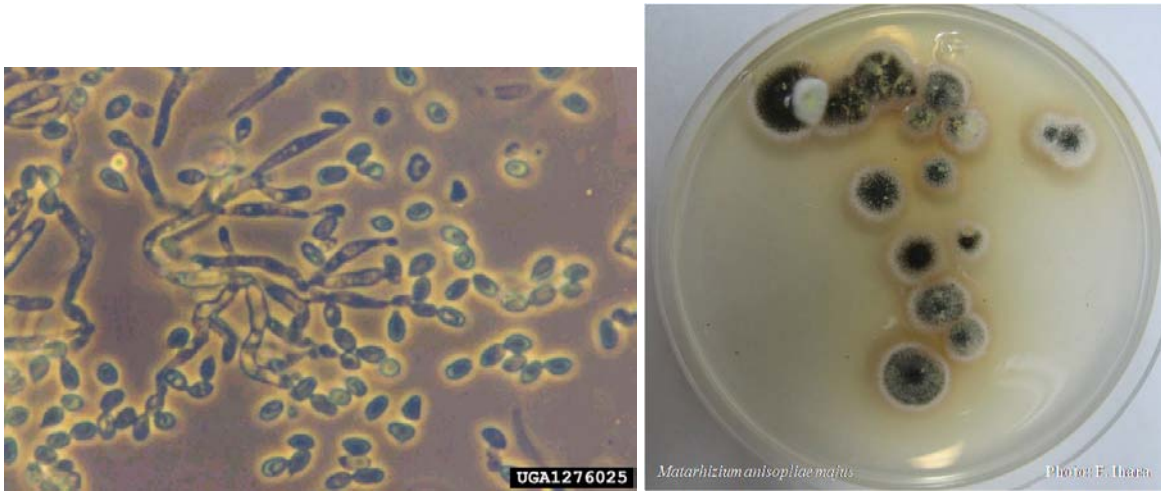


## Mold of the Month January 2010

### *Metarhizium anisopliae* sp.



1. fruiting bodies – spores. (image from forestryimages.org) 2. colonies (image from www.fruit.affrc.go.jp)

#### **Colony Description**

Colonies grow rather slowly, at first floccose, later becoming olivaceous green due to abundant conidiation; reverse yellow to brownish.

#### **Microscopic Features:**

Conidiophores aggregated in dense tufts, with repeated, more or less verticillate branching; phialides in dense, parallel arrangement. Phialides clavate, 9-14  $\mu\text{m}$  long, with rounded apex. Conidia produced in long chains, cylindrical, 5-8 x 2.5-3.5  $\mu\text{m}$ , thick-walled, yellowish-green in mass.

#### **Ecology**

*Metarhizium anisopliae*, formerly known as *Entomophthora anisopliae*, is a fungus that grows naturally in soils throughout the world and causes disease in various insects by acting as a parasite. It has long been recognized that many isolates are specific, and they were assigned variety status, but they have now been assigned as new *Metarhizium* species, such as *M. anisopliae*, *M. majus* and *M. acridum* (which was *M. anisopliae* var. *acridum* and included the isolates used for locust control)

#### **Health Effect**

Humans - No harm is expected to humans from exposure to *Metarhizium anisopliae* strain F52 by ingesting, inhaling, or touching products containing this active ingredient. No toxicity or adverse effects were seen when the active ingredient was tested in laboratory animals.

Insects - The disease caused by the fungus is sometimes called green muscardine disease because of the green color of its spores. When these mitotic (asexual) spores (called conidia) of the fungus come into

contact with the body of an insect host, they germinate and the hyphae that emerge penetrate the cuticle. The fungus then develops inside the body eventually killing the insect after a few days; this lethal effect is very likely aided by the production of insecticidal cyclic peptides (destruxins). The cuticle of the cadaver often becomes red. If the ambient humidity is high enough, a white mould then grows on the cadaver that soon turns green as spores are produced. Most insects living near the soil have evolved natural defenses against entomopathogenic fungi like *M. anisopliae*. This fungus is therefore locked in an evolutionary battle to overcome these defenses, which has led to a large number of isolates (or strains) that are adapted to certain groups of insects