

Trichoderma

Mitosporic (“mitosis” and “sporic”) fungus. Hyphomycetes. Teleomorph (sexual state): Hypocrea (Ascomycete).

Characteristics

Distribution

Approx. 20 species. Found in northern alpine to tropical areas.

Where Found

Soil, decaying wood, grains, citrus fruit, tomatoes, sweet potatoes, paper, textiles, damp wood.

Mode of Dissemination

Wet spore. Rain, insects, water splash, and wind when dried out.

Growth Indoors

Found on paper, tapestry, wood, in kitchens on the outer surface of unglazed ceramics and on a variety of other substrates. Strongly cellulolytic.

Industrial Uses

Trichoderma harzianum pellets have been mixed with ground bark to protect trees and vegetable crops against infections from other plant pathogens. *T. viride* produces cellulase and hemicellulase used in commercial beer, wine and food processing. It enhances the aroma in tea and mushroom products.

Other Comments

T. harzianum has been reported to produce antifungal trichothiazines compounds.

Potential Health Effects

Allergens

Type I allergies (hay fever, asthma). Type III hypersensitivity pneumonitis.

Potential Opportunist or Pathogen

Human infections include a pulmonary cavity, peritonitis in a dialysis patient, and a perihepatic infection in a liver transplant patient. Considered an emerging opportunist in immunocompromised persons.

Potential Toxin Production

Trichothecene and cyclic peptides; gliotoxin, isocyanides, T-2 toxin, trichodermin. *Trichoderma* may cause a mycotoxicosis like that caused by *Stachybotrys chartarum*; some of the metabolic substances produced are closely related to trichothecenes.

Laboratory Notes

Growth/Culture Characteristics

Grows well on general fungal media; spreads in a white floccose mat, developing blue green to yellow-green tufts of spores. *T. viride* has a distinctive coconut odor (ketone metabolite).

Spore Trap Recognition

Conidia size and shape are like *Penicillium* and *Aspergillus* but *Trichoderma* forms sticky clumps of conidia with a distinctive green pigment rather than in chains. Typical green spore clumps are identified as *Trichoderma*.

