

Agriculturally Important Fungi for Sustainable Agriculture. Volume 2. Functional Annotation for Crop Protection

Trichoderma: Biocontrol agents for promoting plant growth and soil health

El Enshasy, HA; Ambehabati, KK; El Baz, AF; Ramchuran, Santosh O; Sayyed, RZ; Amalin, D; Dailin, DJ; Hanapi, SZ

**Abstract**

Trichoderma is a saprotrophic fungus which largely can be found in environments such as forest soil, roots and leaves. This fungus has been declared as soil fungi due to its significant for their fast growth. They exhibited high capacity to utilize different types of complex substrates and can act as strong resistances towards different kind of toxic chemicals. Therefore, Trichoderma species is very abundance on decaying wood. This is mainly because of the heterotropic interactions such as decomposition and opportunistic endophytism. It can be found in all type of soils which includes from forest, salt marsh, agricultural even in desert soils. In addition to that, Trichoderma has been used as an efficient biocontrol agent against the phytopathogens. The main mechanisms for the biocontrol process in this type of fungi have been assumed due to antibiosis, mycoparasitism and competition for space and resources. This fungus evolved many mechanisms which contribute for the improvement of the plant resistance towards diseases, the plant's growth as well as its productivity. Out of 260 species, around 35 established species was mainly discovered for its economic importance mainly due to its capability of various enzyme productions or to be used as biocontrol agents. Global interest was given to researches related to Trichoderma fungus thanks to its applications in the field of agricultural and biotechnology.