

effectively control Heterobasidium annosum causing Root Rot of conifer trees.

→ Another fungus Cryphonectria parasitica causing Chestnut blight. If you take a hypovirulent strains of this same fungus and spray on <sup>attach</sup> plant, mycelium of hypovirulent fungus grows and damage the pathogenic fungus.

6<sup>3</sup>/12/19

### Practical

→ Soil Solarization:

effective method against ~~Fusarium~~, Pythium, Phytophthora, Rhizoctonia, Verticillium & Thielaviopsis

Procedure:

Divide a plot into subplots. Using disk plough, deep plough the soil before spreading polythene sheet. Then apply water 5-10 ml & then cover the plots with polythene sheet. Apply irrigation water for 2-3 weeks. After it select soil samples & remove the polythene sheet. soil sample should be collected from 0-15, 15-30, 30-45 deep of soil.

when results arrive, more fungus are

The propeller is driven by an engine of 110 Horse power.

10/12/19

Theory

⇒ Biological Control of soil borne Diseases

most commonly used fungi are

i) Gliricium virens

ii) Trichoderma harzianum

These can be used as soil mixture or seed priming (deep seed in fungal spore suspension of  $10^5$ ) these fungal spores grow in seed and protect seed from pathogens.

These two are effective against damping off ornamental plants and vegetables. & you can control Pythium, Phytophthora, Botrytis, Sclerotium

⇒ By using Trichomyces flavus you can control Rhizoctonia spp. & Verticillium spp.  
or Rhizoctonia solani

⇒ Pythium ruzm & Pythium ligandorum, these two are used as BCA's and effectively control the pathogenic spp. of their own genus.

⇒ Fusarium wilt of Cucumber and sweet potatoes is caused by Fusarium oxysporum are controlled by Antagonists of Fusarium oxysporum mild strains. These mild strains also induce resistance also in cucumbers & sweet potato.

→ Mycorrhizal fungi also effectively control soil borne diseases like Pine seedling disease caused by Phytophthora cinnamomi

TE 19  
Tomato seedling disease, caused by (Fusarium  
oxysporum, verticillium wilt of cotton  
& also Root Knot Nematode of soybean  
& Fusarium solani.

→ Some commercial products of these  
mycorrhizal fungi are also available in  
Market by Genesis & Multinational companies

⇒ Biological control of Aerial borne Diseases.  
by Fungal Antagonists or BCA's.

These include some filamentous fungi & Yeasts  
and effectively control various Aerial borne dise.

→ Dead tomato flower (Botrytis cinerea)  
is effectively controlled by Cladosporium  
herbarum & Penicillium spp.

→ Epicoccum spp. & Cladosporium spp.  
effectively control canker producing fungi  
like i) Nectaria galligena ii) Leucostoma spp.

→ Aerial spray of Trichoderma spp. control  
Botrytis rot of strawberry and grapes &  
Sclerotinia head rot by using  
Trichoderma spp (attach with honeybees  
which spread the spores of Trichoderma).

→ 50% Aerial borne diseases are controlled  
by Aerial sprays of BCA'S.  
⇒ Commonly used fungi for aerial  
control of fungal diseases / bacterial diseases.