

BIOEFFICACY **OF** **FC 100**

Compiled by

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FC 100

This is a bio-fungicide based on plant extracts developed by the in-house R&D facility of the group company. The company has conducted trials with the product for more than a year. The product is the first plant extract based bio fungicide in the world market and is certainly the most effective among those available. The product is completely biodegradable. This formulation can be used in two ways - as a root application and for foliar application.

The residual toxicity level in chemical fungicides is very high and there are indications that these fungicides enhances pest invasion in certain crops.

The product is branded as **FC 100** and the trade name is registered with the relevant authorities. The formulation has undergone a series of tests *in vivo* and *in vitro* studies on various crops and various fungal diseases. The efficacy of the product is found to control major varieties of fungi that affect cash crops.

FC 100 is a broad-spectrum biological fungicide that controls fungal diseases like *Alternaria* leaf spot, *Colletotricum* red spot in Sugarcane, *Fusarium* wilt and *Exobasidium vexens*. Trials are also on with various external R&D labs on the bioefficacy of our product on other fungal diseases.

FC 100, bio-fungicide is a totally eco-friendly product with appropriate degradation upon usage. The product ensures effective control if sprayed prophylactic and controls effectively when sprayed for infestation. Our trials conducted on tea, marigold and turmeric confirm that the product efficacy.



FUNGAL PATHOGENS EFFECTIVELY CONTROLLED BY FC 100

<i>Causal Organism</i>	<i>Name of the Disease</i>	<i>Crops</i>
1. <i>Plasmopara viticola</i>	Downy Mildew	Grapevine
2. <i>Uncinula necator</i>	Powdery Mildew	Grapevine
3. <i>Macrophomia spp.</i> Banana	Dry Root Rot	Cotton, Egg plant,
4. <i>Rhizoctonia spp.</i>	Root rot	Betel vine
5. <i>Alternaria spp.</i>	Leaf spots & Blights	Marigold
6. <i>Collectotrichum spp.</i>	Anthracnose, Die back Fruit rot, Ripe rot	Chillies
7. <i>Fusarium spp.</i> Betelvine	Wilt	Turmeric, Pepper,
8. <i>Cercospora spp.</i>	Leaf spots Brown Eye Leaf Spot	Groundnut Tobacco
9. <i>Phytophthora spp.</i>	Blight	Potato
10. <i>Erysiphae spp.</i>	Powdery Mildew	Rose
11. <i>Exobasidium spp</i>	Blister Blight	Tea
12. <i>Puccinia arachidis</i>	Rust	Ground nut

These trials have been conducted in not less than one hectare and in all the geographical locations of India. The product was tried in arid, semi arid, tropical, and elevated zones. Trials have been very successful in all these sections. Multicenter Trials – Data on file.



OTHER BENEFICIAL ASPECTS OF FC 100

1. Repellant and Anti Feedant characteristics controls
2. Aphid & Thrips: Control of Aphids and Thrips has also been observed during spray for fungicidal action. The concentration though remains the same.

BRIEF WRITE UP ON IMPORTANT FUNGAL DISEASES OF GRAPEVINE

DOWNY MILDEW OF GRAPEVINE (*Plasmopara viticola*)

Downy mildew is a major disease of grapes. The fungus causes direct yield losses by rotting inflorescences, clusters and shoots. Indirect losses can result from premature defoliation of vines due to foliar infections. This premature defoliation is a serious problem because it predisposes the vine to winter injury. It may take a vineyard several years to fully recover after severe winter injury.

Symptoms

Leaves: Small, greenish-yellow, translucent spots that is difficult to see. With time the lesions enlarge, appearing on the upper leaf surface as irregular pale-yellow to greenish-yellow spots up to 1/4 inch or more in diameter. On the underside of the leaf, the fungus mycelium ("Downy Mildew") can be seen within the border of the lesion as a delicate, dense, white to grayish, cotton-like growth. Infected tissue gradually becomes dark brown, irregular, and brittle. Severely infected leaves eventually turn brown and wither.

Shoots and tendrils: Early symptoms appear as water soaked, shiny depressions on which the dense downy mildew growth appears. Young shoots usually are stunted and become thickened and distorted. Severely infected shoots and tendrils usually die.

Flowers and fruits: Infected flowers die and drop off. Youngberries turn light brown and soft, shatter easily, and under humid conditions are often covered with downy growth of the fungus. The fruit becomes grayish, the skin hardens and shrivels. Often they are mummified, remaining attached to the bunch.

Control Measures

- Sanitation is important. Remove dead leaves and berries from vines and the ground after leaf drop and should be burnt. Since the fungus over winters in infected leaves on the ground and possibly in diseased shoots.
- To improve air circulation, control weeds and tall grasses in the vineyard and surrounding areas.
- Canes should be kept high above the ground and proper spacing and pruning should provide free circulation of air.
- The disease is effectively prevented by giving three to five prophylactic sprays of FC 100 at the rate of 8 ml/lit. (1 Oz/liter of water)

POWDERY MILDEW OF GRAPEVINE (*Uncinula necator*)

Powdery mildew is an important disease-affecting grapevine. The disease has a telling effect on susceptible varieties of grapes under the conducive environmental conditions. Unlike other fungal spores that affect the grapevine, powdery mildew does not require free water on the plant tissue surface to infect. The disease affects vine growth, yield, fruit quality and winter hardiness. Varieties of *Vitis vinifera* and its hybrids generally are much more susceptible than American varieties.

Symptoms:

Leaves:

1. The powdery mildew fungus infects all green tissues of the vine.
2. Small, white or grayish-white patches of fungal growth appear on the upper or lower leaf surface.
3. These patches usually enlarge until the entire upper leaf surface has a powdery, white to gray coating.
4. Affected leaves curl upward during hot and dry weather.
5. Infected expanding leaves may become distorted and stunted.

Shoots:

Young shoots infections are limited and display dark-brown to black patches.

Fruits:

1. If blossom clusters are affected, the flowers may wither and drop without setting fruit.



2. Infection on cluster stems may wither and dry up, resulting in shelling (berry drop).
3. Affected berries carry spots on the surface similar to those on leaves.
4. Sometimes the entire berry is covered with white, powdery growth.
5. Affected fruit often split open.
6. When berries of purple or red cultivars are infected as they begin to ripen, they fail to color properly and have a blotchy appearance at harvest.
7. Later in the season, the sexual fruiting bodies of the fungi develop in the form of black specks on the surface of infected areas.

Control measures:

1. Select an open planting site with direct sunlight. Plant rows in the direction of the prevailing wind in order to promote good air circulation and faster drying of foliage and fruit.
2. Prune and train vines properly in such a way as to reduce shading and increase air circulation
3. Timely intervention of fungicides.

FOR MORE DETAILS

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