

## **FREQUENTLY ASKED QUESTIONS**

### **What is an organic certified product?**

Product which is certified and approved under various organic production norms is called as Organic Certified or Organic Approved product. In India guidelines for Organic Production are framed under NPOP (National Programme for Organic Production) and regulated by APEDA (Agricultural and Processed Food Products Export Development Authority) under the Ministry of Commerce & Industry, Government of India).

### **How does a product get Organic Certification or Approval?**

APEDA has accredited certification agencies both Indian agencies and International agencies operating in India for the process of certification / approval. These agencies evaluate a product based on its genuinity of being Organic and if the product complies with the requirements given under Organic Production protocol, certification or approval is given for that product – declaring it to be Organic in nature.

### **What are the criteria used for considering a product to be Organic?**

The product must be manufactured using only those ingredients which are PERMITTED for use in Organic Production. There is also a provision of allowing Restricted Ingredients, which may not be strictly natural, to be used in Organic Products if these ingredients have proven non-toxicological and eco-friendly properties. Our products not only use the safe and non-toxic ingredients but are also tested for their non-toxicity and biodegradation at the National Toxicology Centre, Pune.

Based on these criteria with using the harmless, non-toxic ingredients in our recipes, our products have been approved for use in Organic Production by Vedic Organic Certification Agency, Hyderabad as well as Switzerland-based International Certification Agency – IMO Control.

### **All your products – Accon, Orcon and Ecofit have the same active ingredient (Eugenol) which is recommended for all disease and pest management. How can the same active ingredient (Eugenol) have different applications?**

Eugenol in Clove Oil is very potent and active. It has different actions when applied at different concentrations. Thus, in Ecofit at 0.10% concentration, it acts as anti-fungal; In Accon at 0.50% concentration, it works as pesticidal against soft-bodied sucking pests and in Orcon, at 1.00% concentration acts as anti-bacterial and anti-viral.

### **Can your formulations be mixed with other products before spraying?**

Compatibility of our formulations with other pesticides / agri-inputs depends on several factors like

- Alkalinity of water used for preparation of the spray
- Amount of time the “mixture” is held before spraying
- Temperature of the spray solution
- Carrier and inert ingredients used in those formulations – unfortunately most of the products do not declare the chemical names of inert ingredients and carrier materials used and it becomes difficult to predict the reaction of our products with these synthetic products.

While our products are compatible with most common pesticides / agri-inputs, following “admixture” should be avoided:

- Captan
- Chlorantraniliprole (Corazen)
- Sulphur-based, Copper-based, Zinc-based formulations
- Organism-based formulations
- Soluble fertilizers

It is always advisable to try a small sample for mixing any two formulations before farm-level application to ensure the physical stability and tolerance by plants.

### **Do your products have phytotoxic effect?**

Our products are made from purely natural ingredients and the dosage at which these are recommended have no phytotoxic effect. While the recommended dosages are from 2-6 ml per litre of water, even at 10-12 ml per litre of water they do not exhibit any phytotoxicity.

### **What is the mode of action of ACCON in controlling soft bodied pests?**

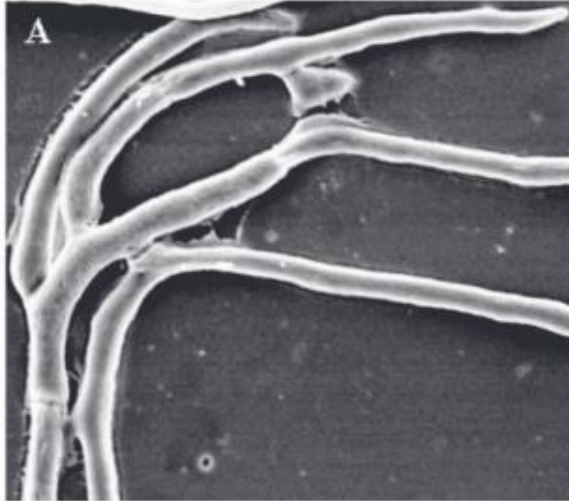
ACCON - Mode of Action (AS PESTICIDAL)

Eugenol being lipophilic in nature interferes with the basic metabolic, biochemical and physiological and behavioural functions of insects. It also acts as fumigant and as feeding deterrent. Different modes of action including repellency and antifeedant activities, disruption of molting and cuticle, retardation of growth and fecundity, inhibition of oviposition and disruption of embryonic development have been reported for Eugenol. On contact Eugenol penetrates inside the insect body as contact insecticide, also acts as repellent, as antifeedant and affects some biological parameters such as growth rate and oviposition. Apart from the direct toxicity, exposure of females to the vapours leads in lower fecundity and egg hatchability. Eugenol also exhibits neurotoxic mode of action including agitation, hyperactivity, paralysis of the pests by affecting acetylcholinesterase activity or octopamine receptors. On inhalation, Eugenol penetrates through breathing and quickly intervenes in physiological functions of insect.

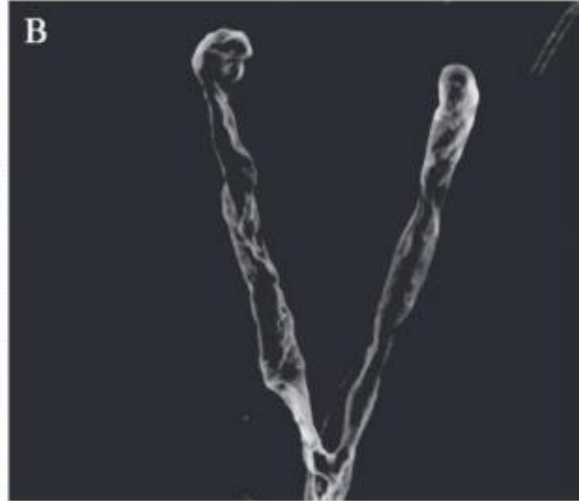
### **What is the mode of action of ECOFIT as anti-fungal?**

ECOFIT - Mode of Action (AS ANTI-FUNGAL)

Eugenol results in morphological damage to exposed hyphae of the fungal organism as observed by Cytoplasmic coagulation and vesiculation on hyphae. Eugenol interferes with metabolic processes taking place after the stages of conidia germination. Another mechanism is due to membrane damage. Eugenol, being a lipophilic compound, can enter between the fatty acid chains that make up the membrane lipid bilayers, thus altering the fluidity and permeability of cell membranes resulting in subsequent destruction of the fungal cells.



Control (Without Eugenol Treatment)

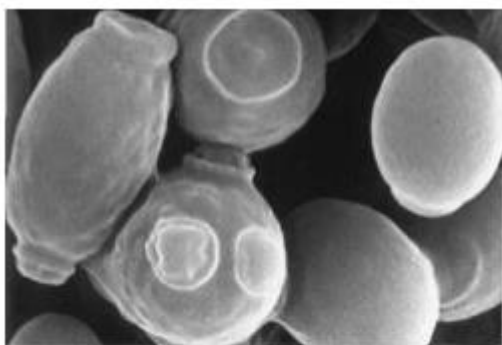


Shriveled hyphae after Eugenol Treatment

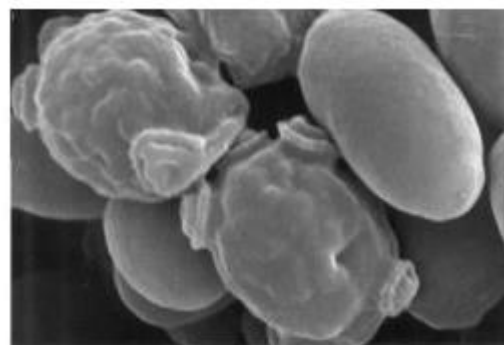
**What is the mode of action of ORCON as anti-bacterial and anti-viral?**

ORCON - Mode of Action (AS ANTI-BACTERIAL)

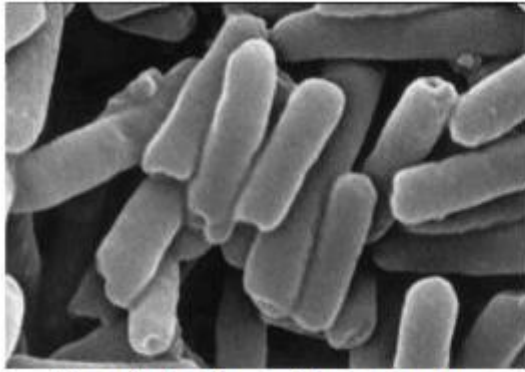
Eugenol in clove oil has both anti-bacterial and bacteriostatic action. It induces the cell lysis by the leakage of protein and lipid contents thus damaging the cell wall and cell membrane of the both Gram positive and Gram negative bacteria. Hydrophobicity of Eugenol enables to partition the lipids of the bacterial cell membrane and mitochondria, thus disturbing the cell structures and rendering them more permeable for its anti-bacterial action. Eugenol denatures proteins and reacts with cell membrane phospholipids changing their permeability and inhibiting a great number of Gram-negative and Gram-positive bacteria. Thus, primary mechanism of action of eugenol is disruption of the cytoplasmic membrane, which increases its non-specific permeability allowing Eugenol to be dissolved in the membrane and accumulate with consequent damage to the membrane.



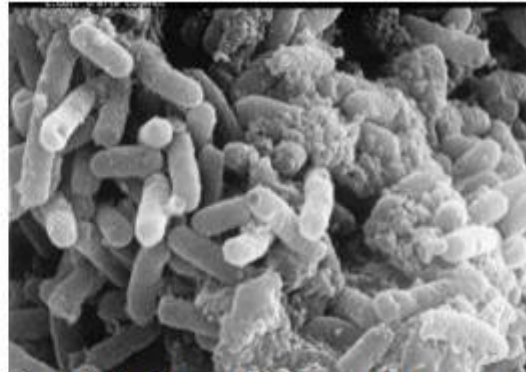
Bacterial cells – without treatment



Bacterial cells – after Eugenol treatment



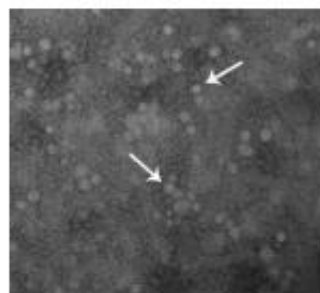
Bacterial cells – without treatment



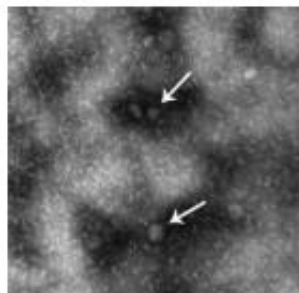
Bacterial cells – after Eugenol treatment

#### ORCON - Mode of Action (AS ANTI-VIRAL)

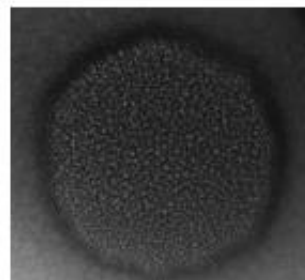
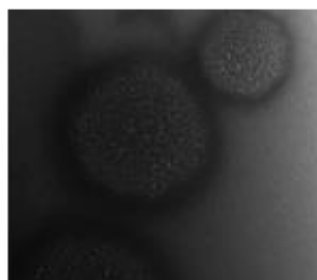
Eugenol directly inactivates the free-virus particles and interferes with virion envelope structures required for entry into host cells. Eugenol ameliorates the oxidative stress and inhibits the expressions of autophagic genes finally impairing the viral strain replication. This results in causing nonspecific and non-productive binding to host cells preventing a successful infection. Eugenol may act directly upon the virus envelope inhibiting post-binding entry of the virus into cells. A slow build-up of Eugenol on the surface of the capsid over time leads to greater reductions in cell culture infectivity.



Untreated Virus Particles



After treatment



Virus particles enlarged after treatment with increased texture

Eugenol from Clove Oil binds directly to the virus capsid. This coating leads to the virus binding non-specifically to host cells and to the plastic of the cell culture plates and also prevents the specific adsorption of the virus to host cell receptors that would lead to successful infection. The virus particles get greatly enlarged following treatment, possibly due to such a build-up of Eugonol coating on the surfaces.

### **How effective is Orcon on Leaf Curl?**

Orcon is highly effective on viral diseases like Leaf, Curl, Yellow Mosaic Virus as well as other bacterial diseases like bacterial spots, canker etc. While Orcon will not “undo” the damage done to the already curled or affected leaves, the new growth is healthy and disease free when applied at the recommended dosages.

### **Do these products have any solubility issues?**

Having processed from natural ingredients and emulsified with high quality Potassium Salt of Fatty Acids (Potassium Soap), the products do not have any solubility issues. Only in case the water quality is not good – too hard water or highly alkaline water, there might be problem with complete solubility. In such cases use of a good surfactant like WESPA 80 at 0.25-.0.5 per ml of spray will make the solution uniform.

### **Why is dosage of ACCON so high (4-6 ml per litre of water)?**

Genuine Organic Formulations do not contain any poisonous chemicals and hence higher dosages are required for managing the sucking and soft-bodied pests. Their action is not to kill the pests with knock-down effect but rendering them incapable of creating any further damage to the crops / plants.

### **Are these products registered with CIB and can you provide Principal Certificate or O Form for selling these products?**

The ingredients used in our formulation are nature-derived and not listed in the Schedule of the Insecticide Act, 1968, hence these cannot be registered with CIB and Principal Certificate or O form is not available. Considering the non-toxic and biodegradable nature of the ingredients, the ingredients that we use have been internationally approved and recommended by various Organic Agriculture bodies like OMRI. Based on the same, our products have been approved for use in Organic Production under the NPOP norms by VOCA and IMO Control.

### **How does JAIVIZYME act in providing nutrition to plants?**

#### **JAIVIZYME - Mode of Action (AS NUTRITIONAL SUPPLEMENT)**

**JAIVIZYME**, a truly novel formula containing Potassium Humate with inherent nutrients is derived from Organic sources rich in Organic Carbon to improve the quality of soil and resultant plant growth. Potassium humate is derived from organic matter which is rich in mineral and organic substances essential for plant growth. The numerous benefits of this combination formula include:

- ✓ Potassium chemically changes the fixation properties of the soil.
- ✓ Neutralizes both acid and alkaline soils; regulate the pH-value of soils.
- ✓ Improves and optimizes the uptake of nutrients and water by plants.
- ✓ Increases buffering properties of soil.
- ✓ Acts as natural chelator for metal ions under alkaline conditions and promote their uptake by the roots.
- ✓ Rich in both organic and mineral substances essential to plant growth.
- ✓ Retains water soluble inorganic fertilizers in the root zones and reduce their leaching.
- ✓ Possesses extremely high cation-exchange capacities.
- ✓ Promotes the conversion of nutrient elements (N, P, K + Fe, Zn and other trace elements) into forms available to plants.
- ✓ Enhances the uptake of nitrogen by plants.
- ✓ Reduces the reaction of phosphorus with Ca, Fe, Mg and Al and liberate it into a form that is available and beneficial to plants. The productivity of particularly mineral fertilizers is increased considerably.

- ✓ Liberates carbon dioxide from soil calcium carbonate and enable its use in photosynthesis.
- ✓ Helps to eliminate chlorosis due to iron deficiency in plants.
- ✓ Reduces the availability of toxic substances in soils.
- ✓ Biologically stimulates the plant and the activities of micro-organisms.
- ✓ Stimulates plant enzymes and increase their production.
- ✓ Acts as an organic catalyst in many biological processes.
- ✓ Stimulates growth and proliferation of desirable micro-organisms in soil.
- ✓ Enhances plant's natural resistance against disease and pest.
- ✓ Stimulates root growth, especially vertically and enable better uptake of nutrients.
- ✓ Increases root respiration and root formation.
- ✓ Promotes the development of chlorophyll, sugars and amino acids in plants and aid in photosynthesis.
- ✓ Increases vitamin and mineral content of plants.
- ✓ Thickens the cell walls in fruits and prolong the storing and shelf time.
- ✓ Increase germination and viability of seeds.
- ✓ Stimulates plant growth (higher biomass production) by accelerating cell division, increasing the rate of development in root systems and increasing the yield of dry matter.

#### **JAIVIZYME - THE DYNAMITE POWER HOUSE OF NUTRIENTS**

JAIVIZYME, containing humates which are extracted from the highly bio-active organic substrate, Lignite, inherently contains several important nutrients. Typically following nutrients are present along with almost 18 to 22% Organic Carbon.

Total N (%) 0.0300

Total P (%) 0.0020

Total K (%) 3.5000

Total Ca (%) 0.0340

Total Mg (%) 0.0080

Total S (%) 0.0190

Total Fe (ppm) 0.0085

Total Zn (ppm) 0.0005

Total Cu (ppm) 0.7000

Total Mn (ppm) 0.0008

Total B (%) 0.0006

#### **How to use Javizyme Granules?**

Jaivizyme Granules are offered mainly for soil application. 4-6 Kg of granules when broadcasted in the field, quality of soil, in terms of porosity, soil aeration etc. is improved to a great extent.

#### **Can we mix Jaivizyme Granules with N, P, K and apply?**

Jaivizyme Granules are organically rich source of nutrients and soil conditioner for the soil. Mixing Jaivizyme Granules with fertilizers is absolutely safe and will not pose any problems.

#### **Should Jaivizyme be used in seedling stage?**

Jaivizyme being a high quality growth supplement for the plants, it can be used at any stage of the plant growth.

**What is the difference between the Jaivizyme Granules and other bentonite granules?**

Apart from Jaivizyme Granules containing high-quality Potassium Humate extracted from highly bioactive organic source (lignite), the carrier material used in Jaivizyme Granules for forming the granules is also lignite. Other granules mostly use Bentonite as the carrier material, which is totally inert and devoid of any nutritional functionality. Thus with Jaivizyme Granules, even the carrier material is also humus matter containing all the inherent nutrients like: Traces of N, P, K, Ca, Mg, Fe, Zn, Cu, Ma, B, Mo.

**Why is there delay in seeing the results after spraying Organic Inputs in the fields where synthetic chemicals have been rampantly used earlier?**

There is a tendency of causal organisms to develop resistance to the synthetic chemicals there is significant amount of residue left. The initial delay could be only by 1-2 days after spraying Organic Inputs but since the Organic Inputs don't leave any residue, the causal organisms cannot develop resistance. During subsequent usages, there is no delay in seeing the results.

**What is the difference between Organic and Bio products?**

Organic Inputs are based on the natural plant-extract based ingredients e.g. Eugenol derived from Clove Oil in our products. The Bio Products are microorganism-based like Bacillus sp., Pseudomonas, Trichoderma Species etc. These products come under the purview of Insecticides Act and need to be registered with CIB and State Departments of Agriculture. Plant-extract based products (except Neem) do not come under the purview of Insecticides Act.

**Is Organic Farming better than Farming done using Synthetic Chemical Pesticides?**

Organic Farming using non-hazardous and biodegradable Organic Inputs is definitely better than farming done using synthetic chemical pesticides. The greatest advantage of Organic Farming is that the output does not carry any residual pesticide residues also keeping the environment intact. Since Organic Inputs do not leave any residue behind, the causal organisms and pests cannot develop resistance over these products in spite of long usage.

**Can Jaivizyme be used in drip irrigation?**

Jaivizyme being a wholesome growth supplement can be used in drip irrigation as well as soil application, apart from the recommended foliar spray. For drip irrigation, the dosage could be slightly higher (4-6 ml per litre of water).

**Can we mix both Accon and Ecofit together and spray?**

Yes, Accon and Ecofit can be mixed together and sprayed.

**Does spray work in high temperatures?**

Temperatures exceeding 40°C could delay the activity of the spray. Therefore, the spraying operation is always recommended to be carried out early morning.

**After spray, if it rains after two hours will the product sprayed remain on the plant or wash out?**

Post rains, any spray will have the tendency to wash out. In such conditions, it is advisable to use a high quality wetting and spreading agent (like Wespa 80) to maintain the longer contact of spray on the leaves,

**How long will the result of product sprayed on plants last?**

Being biodegradable in nature, the Organic Inputs will remain active for 3-4 days but the action of residual active ingredients will continue till 8-10 days.