

Symbiotic Microbes with Algae (SMA)

Chlorella – Kelp – Spirulina

What are Symbiotic Microbes?

Symbiotic Microbes (SM) are a diverse blend of naturally occurring beneficial bacteria, fungi and yeasts that work together to improve soil quality and encourage healthy plant growth. They add more life to soil and assist with the decomposition of organic matter, producing nutrient-rich soil for plants, strengthening plants, and eliminating pests.

What are Symbiotic Microbes with Algae and its Function:

Symbiotic Microbes with Algae (SMA) supports soil regeneration, improve plant health, and stimulates growth from seedling to first flower. Symbiotic Microbes with Algae (SMA) stimulates seed germination, root development and seedling vigour (size, health, and growth).

Detailed Benefits and Functions of Algae:

- It is an algae-enriched bio-fertiliser. SMA is a powerful bio stimulant that reduces the need for fertilisers.
- SMA is a synbiotic that enhances plant and soil health. Synbiotics combine probiotics (*symbiotic microbes*) and prebiotics (*food for microbes that improve their activity, including cyanobacteria*). The amino acids, enzymes, and natural sugars in SMA provide food and energy for beneficial microorganisms in the soil, speeding up the decomposition of organic matter and the uptake of nutrients through the roots. This improves plant growth, promotes rooting, and prevents crop failure, leading to better soil fertility and a healthier ecosystem.
- Rich in nutrients. It provides a host of micro and macronutrients, vitamins and trace elements that enhance soil health and soil fertility, improve plant quality, and boost crop yields.
- Stimulate germination and rooting.
- Vegetative stage: stimulate plant growth from seedling to first flower. It contains natural growth regulators and micronutrients that help crops grow faster and more robustly.
- It enhances plants' resistance to disease and environmental stresses.
- Protect against pollutants such as heavy metals, pesticides and microplastics.
- Improves soil characteristics such as Carbon content. Cyanobacteria's nitrogen-fixing ability improves the Nitrogen content in the soil.
- It improves plant immunity. The antifungal compounds and polysaccharides protect crops from disease.
- It is used as seed treatment. Soak the seeds in SMA solution 6-8 hours before planting to improve germination, root development and seedling vigour.
- Use as a compost accelerator.

Ingredients:

Symbiotic microbes, spirulina, chlorella, kelp, sulphur-free blackstrap molasses, natural ethanol, raw apple cider vinegar, and fountain water.

How to use Symbiotic Microbes with Algae (SMA):

- Foliar spray/soil drench/compost tea
 - **Foliar spray:** 2-5ml per litre of water (*spray upper and lower surfaces of leaves*)
 - **Soil drench:** 5-10ml per litre of water
 - **Compost tea:** 5-10ml per litre of water
- Prevention
 - 2-5ml per 10 litres of water for daily use
 - 2-5ml per litre of water once a week

Plant strength and soil health

- You may alternate weekly with Symbiotic Microbes with Fulvic Acid (SMFA) or Symbiotic Microbes with Fermented Nutrients (SMFN)

Pest and disease

- You may alternate weekly with Symbiotic Microbes Pesticide (SMP)

- Outbreak

- 2-5ml per litre of water daily for at least 12 days

Plant strength and soil health

- You may alternate daily with Symbiotic Microbes and Fulvic Acid (SMFA) or Symbiotic Microbes with Fermented Nutrients (SMFN)

Pest and disease

- You may alternate daily with Symbiotic Microbes Pesticide (SMP). Start the first day with 10ml per litre of water. From the second day, use 2-5ml per litre of water.

When to apply:

DO NOT apply in direct sunlight. Apply late afternoon or early morning before soil and leaves are exposed to direct sunlight. The microbes will attach to the leaf surface or enter the soil, feeding the plant and providing excellent organic fertilisation and resistance to pests and diseases.

Storage and Shelf Life:

Store in a cool, dark place out of direct sunlight. **Symbiotic Microbes with Algae (SMA)** contains living organisms and pressure may build up. Unscrew the cap without removing it to release the pressure and secure it tightly. Shelf life is six (6) months when stored correctly.

More About the Algae in Symbiotic Microbes with Algae:

- Fermented kelp
- Spirulina
- Chlorella

Why do we use fermented algae instead of a normal algae extract:

- Fermentation enhances the nutraceutical profile and bioavailability of spirulina, chlorella, and kelp.
- Symbiotic microorganisms can degrade plant and cyanobacterial cell walls via hydrolysis, converting complex organic compounds, such as polysaccharides, lipids, and proteins, within the cell into smaller molecules with enhanced antioxidant, anti-inflammatory, and immunomodulatory activity.
- Symbiotic microbe's proteases yield bioactive peptides with multiple health benefits, such as ACE inhibition, immune system modulation, and antioxidant activity.

Kelp:

- Improve soil health and crop productivity.
- Improve microbial activity. The amino acids, enzymes, and natural sugars in kelp provide energy for microorganisms in the soil. This leads to better soil fertility, and a healthier ecosystem.
- Reduce the need for synthetic fertilisers. Kelp is a natural alternative to synthetic fertilisers, providing a chemical-free and environmentally friendly option.
- Increase crop yields and product quality. Kelp contains natural growth regulators and micronutrients that help crops grow faster and more robust.
- Improve disease resistance. The antifungal compounds and polysaccharides in kelp protect crops from disease.
- Seed treatment. Soak the seeds in kelp solution 6-8 hours before planting to improve germination, root development and seedling vigour.

Chlorella:

- The abundance of nutrients in chlorella serves as food for soil microbes and activates beneficial microorganisms' functions. It decomposes organic matter in the soil, improving the uptake of nutrients through the roots. This enhances plant growth, promotes rooting, and suppresses crop failure.
- Chlorella is a viable alternative to synthetic chemical fertilisers. It enhances soil fertility, which, in turn, leads to improved soil and plant health.
- Chlorella is a biostimulator for growth in hydroponic systems and for wider use in agriculture.
- Enhanced plant and growth yield.
- It increases soil health and fertility.
- Chlorella increases plant immunity and pathogen resistance.

Spirulina:

- A bio-fertiliser that provides macronutrients and micronutrients, creating favourable conditions for germination and initial growth.
- Enhanced plant growth and yield.
- Spirulina enhances photosynthetic capacity.

- Osmoprotectant: Nontoxic compounds that stabilize cellular structure and enzymes, function as metabolic signals, and scavenge reactive oxygen species that is produced under stressful conditions.
- High in antioxidants.
- Spirulina has the natural ability to fix the nitrogen in the soil.

Summary:

- An algae-enriched bio-fertiliser.
- As a synbiotic, SMA is rich in beneficial microbes that enhances plant and soil health. Synbiotics combine probiotics (*symbiotic microbes*) and prebiotics (*food for microbes that improve their activity, including cyanobacteria*).
- Rich in nutrients, algae and microorganisms that improve soil fertility.
- It improves plants' resistance to disease and environmental stresses.
- It protects against pollutants such as heavy metals, pesticides and microplastics.
- A natural compost accelerator.