MicrobeBio®

MICROBEBIO X11:

ADVANCED MICROBIAL CATALYST FOR COMPOST ACCELERATION AND SOIL

OMRI LISTED For Organic Use
MADE IN USA
NON GMO
ISO

OVERVIEW

Microbebio X11 is a powerful microbial consortium designed to transform organic waste into rich, humus-like compost with exceptional speed and nutrient density. Its formulation blends high-efficiency decomposers, plant growth–promoting rhizobacteria (PGPR), and enzyme-secreting fungi that collectively enhance the breakdown of organic matter, suppress pathogens, and restore biological vitality to soil ecosystems.

KEY MICROBES AND THEIR SCIENTIFIC FUNCTIONS

1. TRICHODERMA HARZIANUM

A robust fungal decomposer that accelerates the degradation of cellulose, lignin, and chitin. It also acts as a biocontrol agent, protecting compost and soil from harmful fungi such as Fusarium, Rhizoctonia, and Pythium while promoting root vigor and nutrient uptake.

2. PHANEROCHAETE CHRYSOSPORIUM

Known as a white-rot fungus, it secretes lignin peroxidase and manganese peroxidase, breaking down complex lignin and phenolic compounds in woody and fibrous waste. This enables rapid composting of materials like rice straw, sugarcane bagasse, and coconut husks.

3. BACILLUS SUBTILIS

A versatile bacterium that produces protease, amylase, and cellulase enzymes, aiding in the decomposition of proteins, starch, and cellulose. It also releases antibiotics that suppress pathogenic bacteria during composting, ensuring a hygienic and odor-free process.

4. BACILLUS AMYLOLIQUEFACIENS

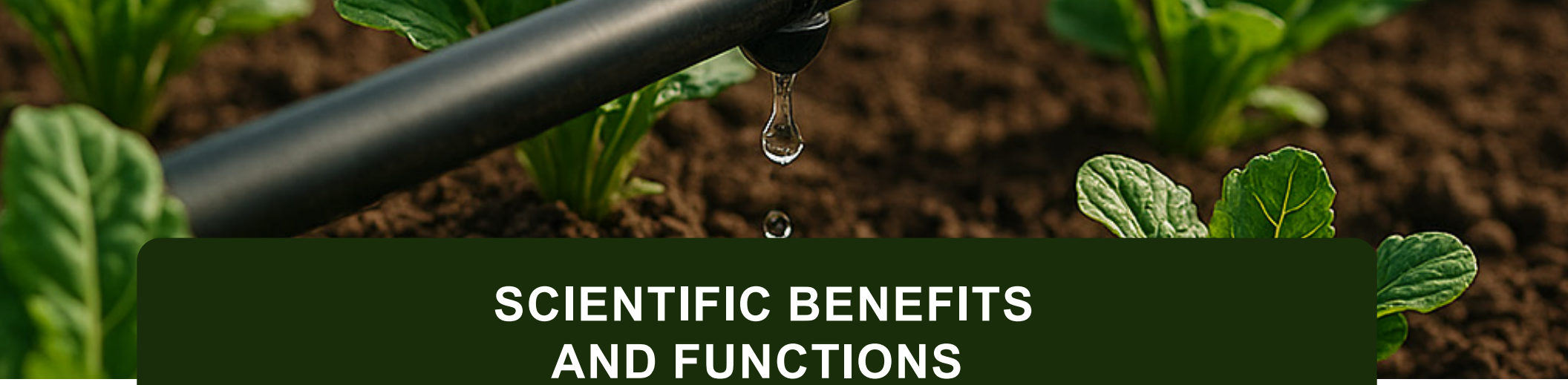
Specializes in decomposing organic residues and promoting beneficial microbial balance. It produces surfactin and iturin compounds that inhibit harmful fungi and bacteria, improving compost stability and nutrient uniformity.

5. PSEUDOMONAS FLUORESCENS

Enhances nitrogen cycling and organic matter mineralization while producing siderophores that chelate iron—making it more bioavailable for plants. It also contributes to the suppression of harmful microbes during the curing phase of composting.

6. PAENIBACILLUS POLYMYXA

A nitrogen-fixing bacterium that produces exopolysaccharides and plant hormones like indole-3-acetic acid (IAA), enriching compost with beneficial compounds that stimulate plant growth and improve soil structure once applied.



SCIENTIFIC BENEFITS AND FUNCTIONS

- **Accelerated Decomposition:**

The synergistic enzyme activity of fungi and bacteria breaks down cellulose, hemicellulose, and lignin-rich materials 2–3 times faster than natural decomposition.

- **Odor and Pathogen Control:**

The antimicrobial compounds from Bacillus and Pseudomonas suppress foul-smelling anaerobes and eliminate harmful microbes like E. coli and Salmonella during composting.

- **Enhanced Nutrient Recovery:**

Converts nitrogen, phosphorus, and potassium into plant-available forms while stabilizing carbon content—producing compost rich in humic and fulvic acids.

- **Improved Soil Microbiome:**

Once applied, X11 compost boosts beneficial microbial populations, promoting long-term soil fertility, aeration, and water retention.

- **Environmental Sustainability:**

Reduces greenhouse gas emissions from organic waste and supports circular agriculture by recycling nutrients back into the soil.

COMPOSTABLE MATERIALS MICROBEBIO X11 CAN PROCESS

Microbebio X11 can effectively compost a wide range of organic materials, including:

AGRICULTURAL WASTE

- Rice straw, wheat straw, corn stalks, sugarcane bagasse
- Coffee husks, tea waste, cocoa pods
- Cassava and potato peels, banana stems, durian shells

ANIMAL AND FOOD WASTE

- Poultry manure, cow dung, pig manure
- Fish waste, meat scraps, and dairy residues
- Vegetable and fruit scraps, kitchen waste

INDUSTRIAL AND MUNICIPAL WASTE

- Paper pulp, sawdust, coconut coir, palm residues
- Brewery and distillery sludge
- Green municipal waste and food service waste

SPECIALIZED COMPOSTING APPLICATIONS

- **Vermicompost activation:** Enhances worm activity and nutrient conversion.
- **Organic fertilizer production:** Used as a microbial inoculant to fortify compost-based fertilizers.
- **Biochar enrichment:** Combines with biochar to produce carbon-rich, microbially active soil conditioners.

OUTCOME: NUTRIENT-DENSE, PATHOGEN-FREE COMPOST

When applied correctly, Microbebio X11 transforms organic waste into mature compost within 25–35 days, depending on substrate and temperature. The resulting compost is:

- Rich in humic substances
- Balanced in C:N ratio (18–25:1)
- Loaded with beneficial microbial colonies (>10^8 CFU/g)
- Ideal for organic farms, horticulture, greenhouse soils, and reforestation projects

Microbebio X11 represents a breakthrough in microbial composting technology—offering a sustainable, biological pathway to recycle organic waste into high-quality fertilizer while improving soil health and reducing pollution. It's not just compost—it's living soil in the making.

THIS REVIEW WAS SUPPORTED BY MICROBEBIO. FOR INQUIRIES, VISIT WWW.MICROBEBIO.COM.

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