NTS
Nutri-Tech Solutions®

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Nutrition Farming®
Soil Health
Agronomy
Education
Animal Health
Human Health

Species List in Nutri-Life Micro-Force™

Nutri-Life® Micro-Force contains multiple strains of *Bacillus* bacterial species.

Bacillus species are rod-shaped, endospore-forming aerobic or facultatively anaerobic, Gram-positive bacteria. In some species cultures may turn Gram-negative with age. The many species of the genus exhibit a wide range of physiologic abilities that allow them to live in every natural environment. Only one endospore is formed per cell. The spores are resistant to heat, cold, radiation, desiccation, and disinfectants.

Bacillus amyloliquefaciens:

- Enhance plant growth and inhibit plant pathogens.
- Colonise roots and reduce plant disease by direct and indirect action.
- Produce antibiotics that inhibit the germination of fungal spores & growth of fungi.
- Agent for ISR.
- Phosphate solubilisation.

Bacillus licheniformis:

Seedlings inoculated with *B licheniformis* exhibited:

- Antifungal activity
- Increased root hairs & fresh weights
- Increases in chlorophyll content, H_2O_2 and activities of antioxidant enzymes
- Increased tolerance to high temperatures & water deficits in seedlings
- Gene expression for ISR
- N assimilation
- Cell wall modification and biosynthesis of osmoprotectants (choline, proline, galactinol)
- Up-regulated function of stomatal closure
- Exerts effects on multiple cellular pathways in defence response, metabolism, antioxidant system and hormone signalling.

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Bacillus megaterium:

- An endophytic or soil dwelling bacterium
- Increases plant's resistance to salt stress
- Agent for ISR
- Grows at temperatures between 3-45° C (optimum at 30° C)
- Recognised as a biocontrol of plant diseases.
- N fixation has been demonstrated in some strains.

Bacillus pumilus:

- Naturally occurs in soil, water and decomposing leaf tissues.
- Shows high resistance to environmental stress (UV, desiccation, presence of peroxide, high salt tolerance).
- It can act as a fungicide (moulds, mildews, blights, rusts), by preventing the development of fungal spores on plants. It forms a physical barrier between the plant leaf and the fungal spores, and then colonizes the spores.
- Has been known to be an agent for ISR

Bacillus subtilis

- Enhances stress tolerance in plants
- Produces antibiotics & outcompetes disease causing microbes
- P solubilisation
- Elicitor for ISR
- Many strains registered as biological control agents