evologic Technologies GmbH

Grow different.

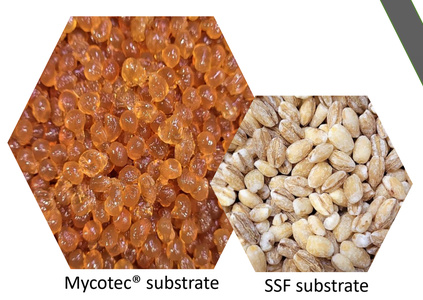
Supplying stable, effective and safe living microbes

Pure Fungi

Mycotec® - Fungal FERMENTATION

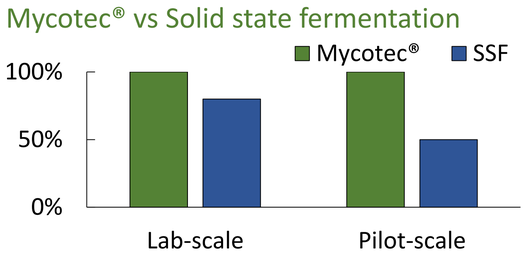
Spores of filamentous fungi that are **highly stable, pure and safe.**

Proprietary production method that allows to cultivate filamentous fungi aseptic, highly concentrated and reproducible.



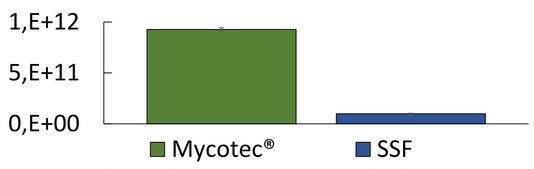
Mycotec® substrate SSF substrate

Substrate sterilization efficacy in %
Mycotec® vs Solid state fermentation



Comparison of sterilization efficiency between Mycotec® substrate and SSF solid substrate (30% moisture) by steam sterilization 121°C for 1h.

Dried product concentration in
Spores/kg dried fermentation bed
Mycotec® vs Solid state fermenation



Comparison of spore concentration from reference solid state fermentation and Mycotec® process after drying to a residual moisture content of 30% wet basis without additional separation step. N = 3

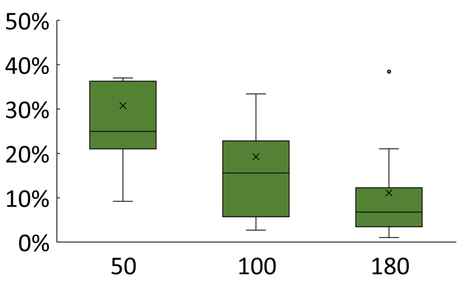
Stable Bacteria

BioShield® - Stabilisation by FORMULATION

Stabilizing gram-negative bacteria during formulation and for prolonging shelf life based on natural polymers that are fully biodegradable.

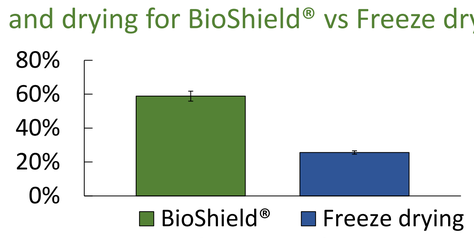
BioShield® formulated product

Remaining storage viability in % of
products formulated via BioShield®



Residual viability after storage of 4 different formulated and dried bacterial strains. Storage temperatures were between 22°C and 27°C. Residual moisture content is below 15% wet basis. Timepoints of viability analysis are given at a precision of ± 10 days. N>10 per timepoint

Remaining viability in % after formulation
and drying for BioShield® vs Freeze drying



Comparison of viability loss of a gram -negative bacterium caused by encapsulation and drying to a residual moisture content of 15% wet basis to viability loss caused by freezdrying in a skim milk plus trehalose formulation.

Challenges with living microbes

Purity – Solid substrate fermentations are prone to contaminations

Microbial contaminations

Limited heat transfer between solid particles and poor mixing characteristics of solid substrates tend to result in insufficient sterilization especially in large scales causing **a high level of contamination in the end product.**

Mycotoxins

Solid substrates are often contaminated with fungal secondary metabolites or mycotoxins that impose a safety risk and impair process reproducibility.

Lack of spore count (Spore concentration)

Fungal products derived from solid fermentation are of comparably low concentration. This greatly impairs ability to formulate and flexibility in application. The separation of fungal spores from the solid substrate is quite **labor-intensive and imposes a health hazard**.

Stability – Low storage viability of gram-negative bacteria

Lack of viable cell count

The uncontrolled decline of viable cells in a product based on living microbes results in a loss in product efficiency.

Supply chain risks

A lack of shelf life is a great challenge for supply chains and distribution networks. The need for just in time product supply is a significant commercial risk for products based on living microbes.

Risk that promising organisms do not make it into a product

Not utilizing promising organisms results in **lost opportunities regarding resource efficiency and food safety.**

Got a challenging living microbe?

We offer FERMENTATION and FORMULATION as a service

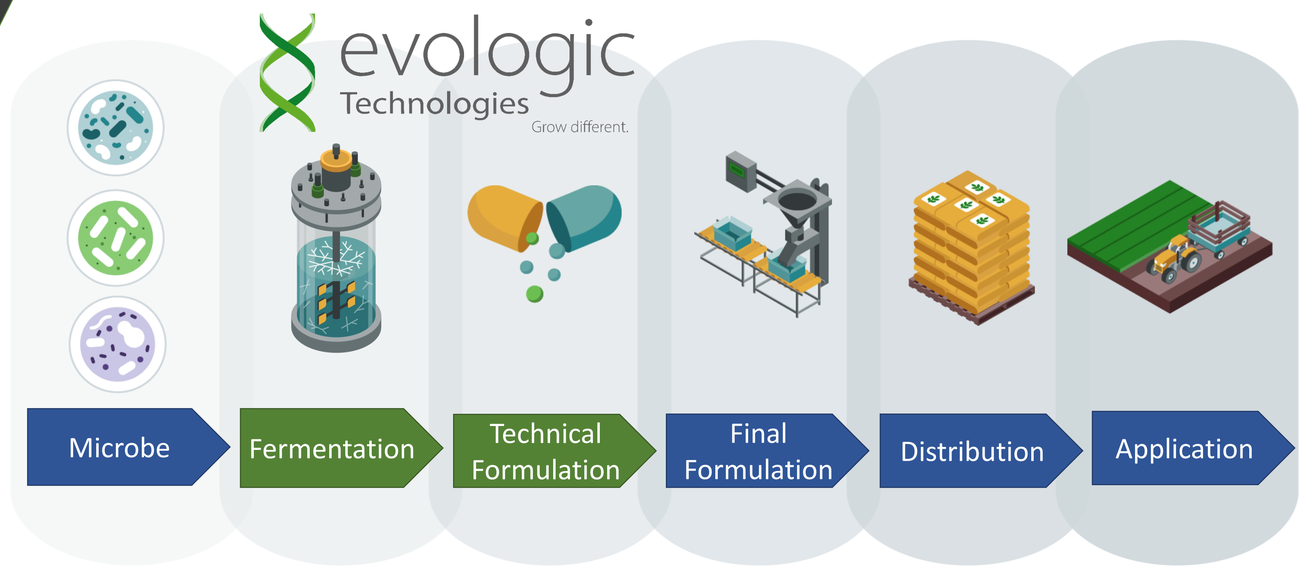
Our **proprietary manufacturing** and **formulation** technologies allows us to produce and stabilize the trickiest of organisms **consistently.**

In-house FERMENTATION

- 25x Lab-scale (2 – 4 L)
- 7x Technical-scale from (30 – 300 L)
- 7x Pilot-scale (500 – 1000 L)
- 2x Small Industrial-scale (4000 L)

In-house Down Stream (FORMULATION)

- Centrifugation/Cross flow filtration
- Fluid bed drying (5 – 300 kg)
- Freeze drying (5 kg)
- Spray drying (20 kg)



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