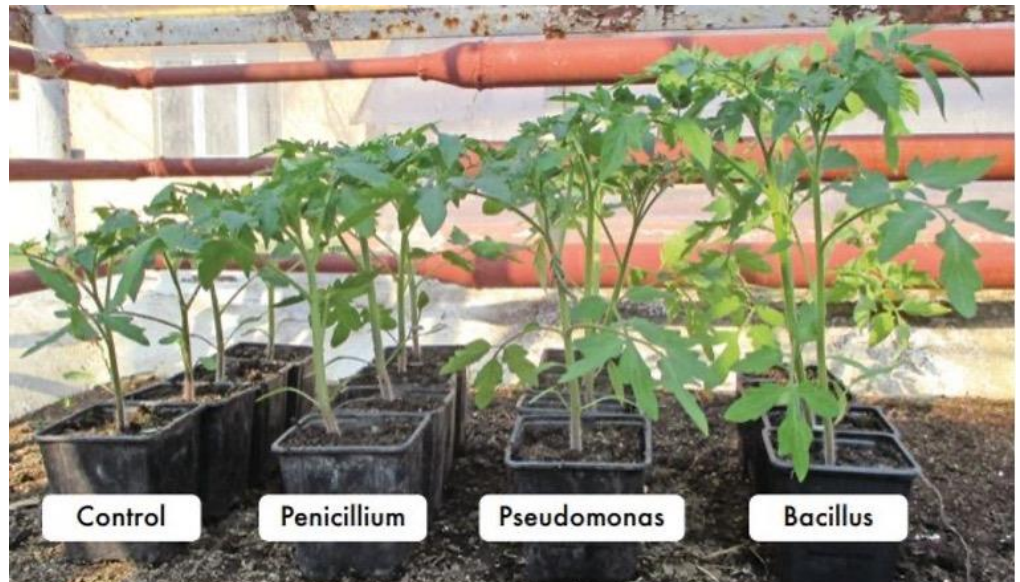

*Biotechnology for
production of
biofertilizers,
biopesticides and
biostimulants under
the trademark
ekofertile™
for leaf and soil
treatment*

Improved nutrient and soil conditions for bigger root mass and better harvest quality – Accelerated conversion of organic substances – Increased humus production – Shortening of growing season – Higher yield through improved availability of nutrients.

Abstract

Consumers are increasingly concerned about food safety, rising levels of food residues and environmental issues due to increasing concerns about their health. This drives the need for biological inputs such as biofertilizers and biostimulants.

The use of chemical fertilizers and pesticides causes many environmental and health problems. Soil structure and fertility loss are one of the main causes of soil degradation. Safe and environmentally friendly technologies could help in the sustainable restoration of degraded soils and fertilization of plants and crops.



Tomatoes growing in the presence of biofertiliser products containing Penicillium, Pseudomonas or Bacillus or without biofertilisers (control).

Biofertilisers | 2020 | FiBL

Farmers could replace their expensive nitrogen fertilizers with the leaching residue from ecological bioleaching done by *ekolive* with heterotrophic microorganisms. It improves plants growth by 100% and dry mass of plants by 400%.

Challenge

Soil degradation has a direct impact on the quality of water, air and food, and has a negative impact on biodiversity and climate change

Consumers are increasingly concerned about food safety, rising levels of food residues and environmental issues due to increasing concerns about their health. This rise in awareness has led them to prefer chemical-free food products. Since the outbreak of the COVID-19 pandemic, people have become more aware of healthy organic foods, which in turn has driven the need for biological inputs such as biofertilizers and biostimulants.

The simultaneous increasing use of chemical fertilizers and pesticides in crop production causes many environmental and health problems. Soil structure and fertility loss are one of the main causes of soil degradation and are seen as a major threat to crop production and the food security of future generations.

Safe and environmentally friendly technologies could help in the sustainable restoration of degraded soils. Bacterial inocula can restore the fertility of degraded soil. These microorganisms increase the bioavailability of nutrients through nitrogen fixation and mobilization of the most important nutrients (phosphorus, potassium, and iron) in the cultivated plants and optimize the soil structure by improving their aggregation and stability.

Response

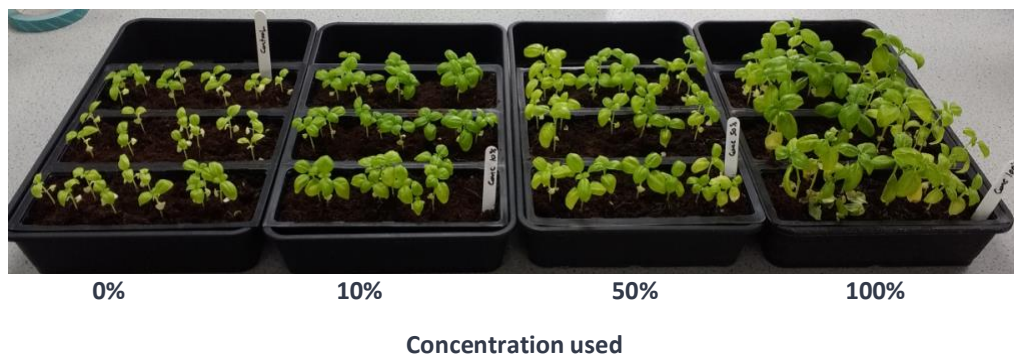
Helping farmers restore their soils, grow healthier plants, and produce healthy and tasty food

Farmers could replace their expensive nitrogen fertilizers with the leaching residue from ecological bioleaching done by *ekolive* with heterotrophic microorganisms. Additionally, *ekolive* can biosolubilize humic acids from lignite which optimizes plant's nutrient supply, promoting up to 70% increase in yield, accompanied by a reduction of up to 30% in the use of fertilizers and pesticides, leading to better and healthier growth of green grass, ornaments, agricultural crops and woods, furthermore increased water holding capacity of soils, substantially reducing the use of water.

The product of *ekolive*'s biotechnology is a biofertilizer *ekofertile™* which can replace dangerous pesticides (naturally produced organic acids killing 99,99% of tested most usual bacteria plants pathogens) and is improving plants growth by 100% and dry mass of plants by 400%.

It is a valuable mix of:

- bacteria and their nutrition – which improve taste of the fruit/vegetable, health and growth of the plants, renew soil microflora and improve plants nutrients uptake;
- organic acids with pesticide effect, including highly valuable humic/ flavic acids;
- dissolved natural minerals from which are micro and macronutrients important for plants (Fe, Cu, Mg, Zn, N, P, K, C, etc.).



For leaf treatment, *ekofertile™* is applied to the surface of the plants – to promote the development of the plant and aid in the prevention of disease and pests. For soil treatment, *ekofertile™* is applied directly into the soil.

ekofertile™ composition

*A valuable mix of
bacteria, organic acids,
and natural minerals*

- Bacteria – plant-growth-promoting microbial consortia *microlive®* (*Bacillus*, *Lactobacillus*, *Leuconostoc*, *Lactococcus*, *Bifidobacterium*, *Acetobacter*, *Pseudomonas*)
- Biomass – 57 %
- Naturally produced by bacteria:
 - Lactic acid – 13'577 mg/l
 - Butyric acid – 2'399 mg/l
 - Acetic acid – 1'970 mg/l
 - Methanol 4'632 mg/l, Ethanol – 1'536 mg/l
- Dissolved natural minerals:
 - Ca – 303 mg/l
 - Fe – 203 mg/l
 - Mg – 85 mg/l
 - Zn – 38 mg/l, Cu (on request)
- Molasses – 20 g/l
- + N-P-K (different concentration on request)
- + humic/fulvic acid (on request)



Benefits

- Renewal of soil microflora improving taste and quality of fruit and vegetables, composed from plant-growth-promoting bacteria, phosphate and potassium solubilizing bacteria and lactic acid bacteria – offer an environment-friendly and efficient alternative to chemical pesticides and fertilizers.
- Bacteria together with organic acids supporting plants' growth by 100 %, dry mass of the plants by 400 %, improve structure and fertility of the soil.
- Butyric and lactic acid promote growth and development of roots, flowers, and fruits, and increase crop yields; Methanol and Ethanol additionally promotes plants' growth.
- Dissolved minerals (iron oxides, mica, feldspar, carbonates) by bioleaching process are a natural and available source of important nutrients (Mg, Fe, Zn, K) required for healthy plants' growth.
- Pesticide effect of organic acids (99,99% decrease of tested bacteria plants pathogens).
- Antifungal properties of acetic acid.
- Lactic acid bacteria accelerate organic matter degradation during composting.
- Bioremediation effect of the bacteria (removal/degradation of toxic pollution).

Imprint and Contact

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Our offer

ekolive is the first and leading provider of a new ecological *bioleaching* method for the ecological release of elements and the breakdown of organic contaminants with consecutive production of biofertilizer.