

Biocontrol Enhancers to Promote Root Colonization by Beneficial Bacteria (Yeda)

code: T4-1723

Ilana Kolodkin-Gal, Biochemistry, Molecular Genetics

Summary

Available chemically based pesticides cause a large number of negative health and environmental effects including the outcome of residual contamination of land, water, and crops. Subsequently there is a need for improved methods of crop protection, preferably the use of environmental friendly alternatives of biologically based pesticides, which will provide a broad-spectrum protection to different crops and blocks an array of pathogens. The described invention uses natural substances as a biocontrol, to promote biofilm formation by *B. subtilis*. *B. subtilis* acts as a protective layer, outcompeting and stopping pathogenic bacterial and fungal colonization in plants roots. Furthermore, *B. subtilis*, which is commonly found in the top-layer of soils and in the human gut, is already in use in the agricultural industry.

Applications

- Dynamically protecting crops against bacterial and fungal.
- Feasible as a mechanism to inhibit biofilm formation of certain pathogens.
- Possibly assisting in plant growth by increasing nutrient and water absorption, and the release of growth inducing hormones.


Advantages

- Broad spectrum and straightforward application
- Non-toxic natural materials
- Reduction in regulatory challenges
- Non GMO application
- Limited capacity of pathogens to develop immunity

Technology's Essence

Use of natural substances to promote the formation of *B. subtilis* biofilms for the protection of plant roots. The biofilms act as a protective barrier, inhibiting the growth of different pathogens, by ensuring that *B. subtilis* outcompetes other bacterial and fungal populations. The technology is straightforward, simplifies regulatory issues by using natural compounds, does not require genetic modification, and uses *B. subtilis*, which is ubiquitously found. Consequently, this technology acts as a safe-to-use pesticide by using natural compounds to control bacterial biofilm formation.

Contact for more information:

Elik Chapnik , Licensing Officer, +972-8-9344374

Yeda Research and Development Co. Ltd. - Technology Transfer from the Weizmann Institute. P.O. Box 95, Rehovot, 76100, Israel. Tel: +972-8-947-0617