Tea Research Institute of Sri Lanka

Technology Brief
Microbial Biofertilizer Soil Inoculant

Technology description:

Soil inoculants of unique combinations of plant growth promoting rhizobacterial (PGPR) species reduce the nitrogen and phosphorus chemical fertilizer requirement Specifically, unique formulations of three different, dual microbial inoculants comprised of a nitrogen fixing species (*Azospirilum*) and phosphorous solubilizing species (*Bacillus*, *Rhodococcus*, or *Microbacterium*) each specific to a different soil series in Sri Lanka.

Technical qualities and advantages:

Numerous greenhouse] and field trials have demonstrated that inoculation of soil near the root-zone of tea plants with unique combinations of soil specific PGPR species reduces the recommended chemical fertilizer application (50 % reduction of Nitrogen in nursery ,33% reduction of Nitrogen in field fertilizer, and 50% reduction of Phosphorous from recommended tea field fertilizer) while maintaining tea-leaf yields. The partial substitution of chemical fertilizers for PGPR inoculants provides improved growth and yield of tea in an environmentally friendly manner. However, the method of producing the inoculants is widely applicable.

Market applications and commercial opportunities:

The PGPR inoculants have been developed as a biofertilizer for mature and nursery tea plants. However, there is interest in applying this technology to other crops, potentially maize, rice, vegetables, etc., and other growing regions.

IP and tangible property status:

Sri Lanka Patent No. 18872 issued to the Tea Research Institute (TRI) on July 10, 2018. The bacterial cultures used in the inoculants are the property of the TRI, and are protected by material transfer agreements. The essential methods of making the inoculant combinations, culturing/mass production, shelf storage, and application are Trade Secrets held by TRI. Potential trademarks are available.

Development status:

Currently, three dual inoculants have been developed specific to regions in mid-country Sri Lanka. Production scale-up is in development. Testing the inoculants under various conditions is ongoing. Testing with other crops is also under consideration.

Types of deals sought:

Non-exclusive licenses, regional and field of use exclusive licenses would be considered.

TRISL seeks commercial allies in tea production.

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