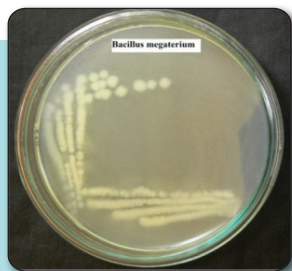


Wetable Powder based formulation of *Bacillus megaterium* NBAII 63 for the growth promoting ability in brinjal and tomato



Nucleus culture of
B. megaterium NBAII 63

Technology Description

The bacterium *Bacillus megaterium* was formulated in talc powder and the shelf life of the formulation was 8 months. The powder-based formulation of *B. megaterium* (strain NBAII 63) (10^8 cfu of bacteria g^{-1}) was found to be a promising and an effective antagonist against bacterial wilt caused by *Ralstonia solanacearum* in tomato and brinjal. It is also an efficient phosphate solubilising organism. The dosage and methods of application of the formulation against bacterial wilt disease have been standardized.

Background

Bacterial wilt disease caused by *Ralstonia solanacearum* is one of the most devastating diseases of solanaceous vegetable crops and it is difficult to control with chemicals and cultural practices. Resistant sources are also not available. Biological control can play an important role in the management of bacterial wilt in the field level. *Bacillus megaterium* (NBAII 63) induced the growth and reduced the bacterial wilt incidence in the field level. The antagonist induced systemic resistance against the wilt disease through the activity of phenolic enzymes such as peroxidase and polyphenol oxidase and phenols. The bacterium induced growth and yield of brinjal and tomato plants due to its better root colonization and phosphate solubilization ability.

Benefits /Utility

- The bacterial wilt disease incidence of tomato and brinjal could be reduced to maximum extent.
- The growth and yield of the plants will be enhanced due to the phosphate solubilization ability of the organism.
- The technology may play a major part in the organic production of tomato and brinjal.
- The farmer can reduce the cost by 25% for bacterial disease management by adopting this technology.



Talc formulation of
B. megaterium NBAII 63

Scalability

It is amenable to multiply in large scale.

Business and commercial potential

Being a very good growth promoting and antagonistic organism it attracts lot of vegetable growers and entrepreneurs across the country. Since the bacteria are spore formers the shelf life of the product is longer. The product will have high demand because vegetables are grown all over the country throughout the year. The product is highly essential for the vegetable nurseries to produce quality and disease-free seedlings.

Financial requirement

Any industry or entrepreneur can produce the product without much cost and sophisticated equipments. The expected return will be 25% of the sales after taking into account all the cost of production.



Field view of tomato treated with *B. megaterium* NBII 63

Target Market/Customer

There are huge numbers of tomato and brinjal vegetable nurseries in the country. The product and the technology could be sold to these nurseries for the production of quality, Robust and bacterial wilt disease free seedlings.

There are lot of entrepreneurs/ industries producing and supplying the antagonistic and growth promoting microorganisms in India at reasonable price. The product could be commercialised to them at a competitive price. There is a good scope to transfer the technology to the state government biocontrol laboratories at a competitive price. This technology already commercialized to four firms.

Social impact of the technology

- The cost of production for raising crops will be very low due to adaptation of the technology. The standard of living and health of marginal and small farmers will be improved due to adaptation of this technology. The fertility status of the soil will be maintained due to the application of the product.

Toxicological data

- *Bacillus megaterium* NBII 63 act as a growth promoter in this technology so toxicology data will not be required.