

Development of Efficient and Suitable Carriers for Microbial Formulations which Promotes Plant Growth

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Abstract: Innovative technologies are required to solve existing problems in agriculture sector. The present scenario in agriculture shows that the indiscriminate use of chemical fertilizers has deprived the soil of its natural ecosystem and fertility. Organic farming is the best alternative to the existing problem. However, the pitfalls of organic farming lie in the storage and stability of the bioactive molecules in the conventional carrier system. At present FIB-SOL aims to offer solution to this problem by developing efficient carrier systems. Liquid bio fertilizers (LBF) and Fertilizer carrying membrane (FCM) are the two products developed at FIB-SOL, which, comprises of microbial formulations with improved stabilizers and carrier material. The products are aimed at improving the storage, application and logistics of bio fertilizers compared to currently available products.

Currently FIB-SOL has developed a liquid formulation N-SOLE, which is applicable to non-leguminous crops like paddy, cotton, vegetables, fruits and tea plantations. N-SOLE has a population of 10^{10} cfu/ml and 1 litre of N-SOLE would be sufficient to fix 10-15 Kg of nitrogen/acre. Experimental results show that the viability of cells in N-SOLE is stable for a period of 6 months. In house plant growth experiments have proven that N-SOLE promotes early emergence of tomato seedlings compared to controls and compost, thus making it a better substitute for available products.

The FCM's developed by FIB-SOL has excellent opportunity, since it would improve the stability and logistics of bio fertilizers. The FCM's are manufactured by encapsulation of microbes in biodegradable polymers. High pay load of cells could be encapsulated (10^{11} cfu/mg), which reduces the bulkiness of bio fertilizers.