

A BIOFILMED BIO FERTILIZER FOR TOMATO

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Excessive mineral fertilizer application to sustain high productivity of tomato causes many detrimental ecological consequences, in addition to high cost of production. Developed microbial communities in a biofilm mode; biofilmed biofertilizers (BFBFs) have the potential of substituting mineral fertilizers up to 50% without losing production potential of crops. The current study was designed for developing BFBFs for tomato and to evaluate its performances by substituting with mineral fertilizers. A greenhouse pot experiment was carried out using soil from Vavuniya region at the Institute of Fundamental Studies. Isolated fungal and bacterial monocultures were screened for a possible biofilm, and the selection was tested using a completely randomized design for its impact on growth. Treatments were biofilm (BF) alone, 100% mineral fertilizer (CF), BF+25% CF, BF+50% CF, BF+75% CF, 25% CF only, 50% CF only, 75% CF only, control and biofilm medium only. Results showed that sole application of biofilm was not significantly different from full mineral fertilizer application during early growth. Plant dry weight at 7 weeks after transplanting was similar for sole biofilm and 100% CF. During early growth, BF+25% CF showed better performances than high dosage of mineral fertilizers and biofilm. Transforming the early growth to yield, sole BF is a possible substitute for mineral fertilizers in tomato. It is essential to test this BF in on-farm conditions for more concise conclusion.

Key words: Biofilmed biofertilizer, BFBFs, Early growth stage, Mineral fertilizer, Tomato