عنوان مقاله:

Development ofbioconsortia for optimizing nutrient supplementation through microbes for sustainable tobacco production

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نویسندگان:

.D.V. Subhashini - *ICAR-Central Tobacco Research Institute, Rajahmundry ۵۳۳ ۱۰۵, Andhra Pradesh, India*

.M. Anuradha - *ICAR-CTRI Research Station, Kandukur, Andhra Pradesh, India*

.D. Damodar Reddy - *ICAR-CTRI Research Station, Kandukur, Andhra Pradesh, India*

J. Vasanthi - *ICAR-Central Tobacco Research Institute, Rajahmundry ۵۳۳ ۱۰۵, Andhra Pradesh, India*

خلاصه مقاله:

Increased interests in low-input agriculture in recent years has seen the growing developmentin the use of commercial biological inoculants to increase the mobilization of key nutrients suchas nitrogen (N), phosphorus (P) and potassium (K) to enhance their availability to crop plants.The objectives of this field experiment with tobacco were to determine i) reduced rates ofinorganic fertilizer coupled with microbial inoculants that produce plant growth, ii) yield andnutrient acquisition levels equivalent to those with full rates of fertilizers and iii) the minimumlevel to which fertilizer could be reduced with the use of bioinoculants. The microbialinoculants used were plant growth promoting bacteria viz., Azospirillum, Azotobacter, Bacillussubtilis and Frateuria aurantia alone or a mixture of them in combination with 75% chemicalfertilizer. Results showed that supplementing 75% of the chemical fertilizer rate with inoculantsproduced plant growth, yield and nutrient (N, P and K) acquisition that were statisticallyequivalent to the full fertilizer rate without inoculants. When inoculants were used in single,double or triple with 75% RDF the beneficial effects were usually not consistent. However,inoculation with the mixture of PGPR (N, P and K mobilizers) at 75% RDF producedsignificantly superior yield better than the full fertilizer dose without inoculants. Withoutinoculants use of fertilizer rates lower than the recommended resulted in significantly less plantgrowth, yield and nutrient uptake. The results suggest PGPR based inoculants can be used andshould be further evaluated as components of integrated nutrient management .strategies

کلمات کلیدی:

Azotobacter, Bacillus subtilis, Bioinoculants, Frateuria aurantia, Tobacco