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“Multigeneric Microbial Coaggregates” - Effect of different bioformulations of PGPR cells on the enhancement of PGPR characteristics and biocontrol against *Xanthomonas oryzae* pv. *oryzae* in rice grown under lowland condition

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ABSTRACT

The application effect of different bioformulations viz., single strain inoculation, co-inoculation and coaggregates application (natural and artificial), of PGPR cells viz., Azospirillum (AZ-3), Pseudomonas (PF-3) and Methylobacterium (MB-3), on the enhancement of PGPR characteristics and biocontrol against Xanthomonas oryzae pv. oryzae was studied under in vitro condition in lowland rice cv.BPT-5804. It was observed that the application of “Multigeneric microbial coaggregates, (natural)”, consisting of Azospirillum, Pseudomonas and Methylobacterium enhanced the PGPR characteristics, viz., seed vigour index, adherence to rice roots and reduction in the incidence of Xanthomonas oryzae to a higher level followed by multigeneric microbial coaggregates (artificial) application, coinoculation and individual cell application. Among the different coinoculation treatments, the coinoculation of all the PGPR cells viz., Azospirillum, Pseudomonas and Methylobacterium enhanced the above said parameters to a higher level followed by coinoculation of any two PGPR isolates. Regarding the individual cell application, the application of Pseudomonas recorded higher values for PGPR characteristics and biocontrol against Xanthomonas oryzae followed by individual cell application of Azospirillum and Methylobacterium. It was concluded that the application of PGPR cells viz., Azospirillum, Pseudomonas and Methylobacterium, as natural coaggregates, augmented the PGPR characteristics and biocontrol against Xanthomonas oryzae pv. oryzae to a higher level when compared to other formulations of PGPR cells.

Keywords: PGPR, bioformulations, “Multigeneric microbial coaggregates”, growth and biocontrol, lowland rice.
