RESPONSE OF *BRASSICA CARINATA* TO INOCULATION WITH PLANT GROWTH PROMOTING RHIZOBACTERIA (PGPR)

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ABSTRACT

Several rhizobacteria isolated from the rhizosphere of different Brassica species were screened under gnotobiotic conditions. Data revealed that 92 per cent of the rhizobacteria increased root length while 87 per cent enhanced shoot length and 94 per cent increased shoot weight of B. carinata. Ten promising isolates (PGPR) were selected for further evaluation in pot trial. Peat-based inoculum was prepared and inoculated seeds were sown in pots in the wire house. Results revealed that inoculation with these selected PGPR increased plant height, root length, number of branches per plant, stem diameter, number of pods per plant, grain yield and oil contents up to 27, 24, 25, 31, 38, 33, and 10%, respectively over uninoculated control. In L-tryptophan (L-TRP) free medium, auxin production by the PGPR ranged from 1.23 to 11.07 μg mL^{-1} compared to 11.60 to 24.10 μg mL^{-1} in the presence of L-TRP. Regression analysis indicated that in vitro auxin production by these bacteria were significantly correlated with grain yield (r= 0.64) and oil contents (r= 0.79). It was hypothesized that presence of L-TRP in root exudates might stimulate the biosynthesis of auxins by PGPR which might influence the growth and yield of inoculated plants.

Key Words: Rhizobacteria, Plant growth promoting rhizobacteria, Auxins, *Brassica*.