

RAPD Profiling of *Bacillus* spp with PGPR Potential and Their Effects on Mineral Composition of Tomatoes

Caroline F. Ajilogba and Olubukola O. Babalola*

*Food Security and Safety Niche Area, North-West University, Mafikeng Campus,
Private Bag X2046 Mmabatho 2735, South Africa*

KEYWORDS *Bacillus* spp. Biocontrol. *Fusarium* Wilt. Minerals. PGPR. RAPD. Tomatoes

ABSTRACT *Bacillus* species have been known to antagonize and inhibit the growth of various plant pathogens but quality of crop from such plants is yet to be investigated. The aim of this study is to analyze the mineral composition of tomato to which *Bacillus* isolates were applied as a biocontrol agents whose relatedness and diversity has been profiled using the Random Amplification of Polymorphic Deoxyribonucleic acid (RAPD). Eleven *Bacillus* isolates were characterized by using RAPD primers and four of them, that is, *B. amyloliquefaciens*, *B. cereus*, *B. pumilus* and *B. subtilis* were randomly selected as antagonists against *Fusarium* wilt pathogen in tomatoes. Harvested tomatoes were analyzed for mineral composition using Energy Dispersive X-ray 720. Diversity of the eleven *Bacillus* isolates were profiled using primers S4, A9B7 and OPH 19 and 76 bands were produced. Bands from primer A9B7, OPH 19 and S4 were 90.9, 87.5 and 92.5 percent polymorphic, respectively. Plants treated with *B. cereus* had highest fresh and dry mass of tomato plant as compared to control, whereas, *B. amyloliquefaciens* treated plants had significantly bigger tomatoes with highest quantity of potassium, copper and rubidium. Tomatoes from treatment with *B. subtilis* had highest quantity of calcium while those from *B. pumilus* had highest quantity of manganese and rubidium. These results suggested that these *Bacillus* isolates can be used to promote plant growth and quality of tomato while their consortium can be researched.