

INFLUENCE OF TWO ANTIMICROBIAL SUBSTANCE-PRODUCING *BACILLUS* STRAINS IN THE MICROBIAL COMMUNITY PRESENT IN THE RHIZOSPHERE AND ROOT OF SWEET POTATO (*IPOMOEA BATATAS*)

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The sweet potato (*Ipomoea batatas*) has its primary application in food consumption and can be used for the preparation of animal feed and industrial products. In Brazil, its cultivation has great social importance for family agriculture, and is considered a subsistence crop. Although it is a rustic culture, the sweet potato is susceptible to soil pests and diseases, and strategies to combat these pathogens involve the application of pesticides which can lead to adverse environmental consequences. In previous studies, two bacterial strains (T052-76 and T149-19) were isolated from sweet potato roots and showed the production of antimicrobial substances (AMS) against *Plenodomus destruens*, a sweet potato fungal pathogen. These strains were identified as *Bacillus subtilis* and *Bacillus pumilus*, respectively. To contribute for the combat of pathogens that affect the production of vegetable crop, this study aims at: (i) inoculating the strains T052-76 and T149-19 in sweet potato seedlings in a greenhouse experiment; (ii) determining the persistence of these bacteria in the soil and/or their colonization in the roots; (iii) and evaluating the impact of the introduction of these bacterial strains in the indigenous microbial community associated with the plant. For this purpose, traditional cultivation methods and molecular methods (polymerase chain reaction-denaturing gradient gel electrophoresis - PCR-DGGE - based on the genes encoding the 16S rRNA and 18S rRNA) were used. To facilitate the re-isolation of the inoculated bacteria, spontaneous mutants resistant to rifampicin were obtained for each strain. The mutants showed growth curves similar to those of wild strains and also produced AMS against *P. destruens*. Twelve vases containing sandy soil and sweet potato seedlings (cultivar Ourinho) with 30 days of planting were assembled as follows: (i) four vases - control (without bacterial inoculation); (ii) four vases inoculated with *B. subtilis* (10^6 CFU/g soil); (iii) four vases with *B. pumilus* (10^6 CFU/g soil). Samples of bulk soil, rhizosphere/rhizoplane and roots were collected immediately after inoculation (t0), and 30 (t1), 60 (t2) and 90 (t3) days after the beginning of the experiment. The presence of the inoculated bacterial strains was observed in the DGGE profiles but only in the vases where they were inoculated. Their influence in the indigenous microbial community associated with the plant is still being evaluated.

Keywords: *Bacillus* sp., microbial community associated with sweet potato, antimicrobial substance.

Grant: CNPq, FAPERJ and CAPES