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UDRUŽENJE MIKROBIOLOGA SRBIJE

POTENTIAL OF BACILUS AMYLOLIQUEFACIENS STRAINS SS-12.6 AND SS-38.4 IN BIOLOGICAL CONTROL OF POTATO ROT PATHOGENS

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Background: Bacterial pathogens Ralstonia solanacearum, Clavibacter michiganensis subsp. sepedonicus and Dickeya dianthicola are quarantine bacteria in EPPO region and lead to severity losses in potato production. Widespread Pectobacterium carotovorum subsp. brasiliensis also causes damages under favorable conditions. The available bactericides are not enough effective, therefore biological agents in their control are emerging as a possible solution.

Objectives: The aim of this study was evaluation of antibacterial activity of Bacillus amyloliquefaciens against recently found bacteria in Serbian potatoes (R. solanacearum, D. dianthicola and P. c. subsp. brasiliensis).

Methods: Two antagonistic B. amyloliquefaciens strains coded as SS-12.6 and SS-38.4 were used in in vitro screening of antimicrobial activity against R. solanacearum (strain Rs81/18), D. dianthicola (strain Dd31) and P. c. subsp. brasiliensis (strain Pcb62). Pathogens and antagonists strains were grown in LB medium for 48 h at 26 C° and 30 °C, respectively. Supernatants and suspended pellet of full culture of SS-12.6 and SS-38.4 were tested by well diffusion assay and drop-plate method, respectively. Diameter of inhibition zones were measured and expressed in mm. Biofilm formation was performed on microtitre plates and measured by multi-well plate readers.

Results: Supernatants of antagonists formed inhibition zones for R. solanacearum (SS-12.6 10×10 mm; SS-38.4 11×11 mm) and P. c. subsp. brasiliensis (SS-12.6 10×10 mm; 38.4 12×12 mm), while result for D. dianthicola was negative. Pellet of full antagonist cultures produced inhibition zones only for R. solanacearum (SS-12.6 10×11 mm; 38.4 11×11 mm). The biofilm were formed in poor formation for all tested pathogens (category 1).

Keywords: antagonistic, quarantine bacteria, biological control