

TITLE: EXOPOLYSACCHARIDES PRODUCTION AND TOLERANCE TO WATER AND SALINE STRESSES BY *STENOTROPHOMONAS SP.*

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The production of food remain in crescent demand due to the constant populational growth. However, the agricultural soils are subject to adverse conditions, which may bring damages to food production. Factors as water and salt stress may harm the vegetable development. Nevertheless, some symbiont microorganisms are able to tolerate these stresses, enabling major resilience to plants. This tolerance may be in consequence of the production of substances that help in the osmotic adjustments as the exopolysaccharides (EPS). In this contexto, the presente study aimed to evaluate the ability of exopolysaccharides production over saline stress of two bacteria (UAGC869 and UAGC965) of the genus *Stenotrophomonas* isolated from sugarcane, as well as to evaluate their resilience capacity to the saline and hidric stresses. To evaluate the production ofEPS, the strains were cultivated in TSA 10% liquid for 24h. After this, they were inoculated on solid medium with 10% of sucrose and suplementd with 0; 1; 2,5; 5 and 7,5% of NaCl. The EPS production was evaluated by the diameter of the halo of the colony in two days intervals. For To the evaluation of tolerance to saline and water stresses, the strains were inoculated on TSA 10% with 285 g.L⁻¹ sorbitol, enabling water activity of 0,963 A_w to 25°C plus 0; 1; 2,5 and 5% of NaCl. Both experiments were incubated to 25°C for 18 days and performed in triplicate. It was possible to observe that the bacteria UAGC869 produced EPS in all the concentrations of NaCl, but with a decrease in the production due to the increase in concentration of salt. However, its ability to produce EPS even in culture of 7,5% of NaCl desserves to be highlighted. The bacteria UAGC965 produced EPS in 0; 1 and 2,5% concentrations. In the concentration of 5% the bacteria produced the compound from the 6th day after the inoculation and was not able to produce EPS in the concentraton of 7,5%. In the water and saline stress experiment, it was observed that both strains were slightly tolerant to water stress. In the treatments with NaCl, the bacteria did not grow, and was not able to tolerate the water and salt stress simultaneously. Even the studied bacteria being of the same genus, the UAGC869 presented better results about the answer to diferente stresses, being a strong candidate to vegetable growth promotion under diferent stresses.

KEY WORDS: RESILIENCE, PLANT GROWTH PROMOTION, SORBITOL
