TITLE: ESSENTIAL MINERALS SOLUBILIZATION BY *STENOTROPHOMONAS* STRAINS ASSOCIATED WITH SUGARCANE PLANTS

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Brazil's arable soils comprise a wide diversity of elements, which can often determine the type of reaction that occurs in the medium, especially when these reactions are related to microorganisms. Phosphorus and zinc are essential minerals for plant development, but are not sufficiently available in the soil for plants. However, symbiotic microorganisms have the ability to solubilize inorganic minerals, allowing the release of compounds assimilable to plants, and reducing the need for input. Therefore, the aim of this study was to evaluate the solubilitation of phosphate and zinc under different sources of carbon (glucose and sucrose) of two bacteria of the genus *Stenotrophomonas*, isolated from sugarcane. The strains of *Stenotrophomonas*, UAGC869 and UAGC965, were inoculated into two types of solid culture medium to evaluate the phosphate (PS) and zinc (ZS) solubilization. To analyze the SF, the bacteria were inoculated in medium containing insoluble calcium phosphate plus 1% glucose and 1% sucrose, independently. To analyze the SZ, the bacteria were inoculated in medium containing zinc oxid plus the same carbon sources, being three repetitions to each experiment. All the plates were incubated to 25^{0}C for 15 days and evaluated each 3 days. The presence of clear area around the bacterial colonies indicated the mineral solubilization. The index of solubilization (IS) expressed by the reason of the mean diameter of the halo of solubilization by the mean diameter of the halo of the colony, was calculated. It was possible to observe that the bacteria UAGC869 presented ability to solubilize phosphate. However, when glucose was used as carbono source, the IS were bigger due to the time of incubation in relation to sucrose as carbono source. The bacteria UAGC965, even being of the same genus, did not presente ability to solubilize phosphate in the evaluated conditions. None of the two strains of *Stenotrophomonas* presented ability to solubilize zinc in the evaluated conditions. Thus, the bacteria UAGC869 should be better explored in field experiments to evaluate its potential to promote plant growth.

KEY WORDS: PHOSPHORUS, PLANT-BACTERIA INTERACTION, PLANT GROWTH PROMOTION, ZINC.