TITLE: SOLUBILIZATION OF INORGANIC PHOSPHATE BY BACTERIA OF THE GENUS *Pseudomonas* UNDER SALINE AND PH STRESS.

AUTHORS: SILVA, J.M.M[1].; CARVALHO, A.S[1].; DIAS, E.L[1].; TEIXEIRA, M.F[1].; FREITAS, C.C.G[1].; AMORIM, A.S[1].; SOBRAL-KUKLINSKY, J.[1].

INSTITUTION: [1]UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO – UNIDADE ACADÊMICA DE GARANHUNS (AV. BOM PASTOR, CEP: 555292-270, GARANHUNS-PE, BRAZIL)

ABSTRACT:

Brazil is recognized by its cultural and environmental diversity. However, it is not restricted only to this. Brazilian soils are very diverse as well, and are subjects to adverse conditions. These adversities may be caused by a series of factors as the salinization or nutritional deficiency of these soils. The phosphorus is an essential nutrient to plants however it is found in low availability in the soil. An important part of microorganisms, free or in symbiosis with plants have the ability to solubilize inorganic phosphates, making the phosphorus available and assimilable to vegetable. In this context, the present study aimed to analyze bacteria of the genus *Pseudomonas* about their ability of solubilize inorganic phosphate over different saline concentrations and hydrogen potential (pH). It was used two strains: UAGC86 (*Pseudomonas* sp.) and UAGF14 (*Pseudomonas mosselii*), both sugarcane endophytic. To phosphate solubilization under saline stress, the strains were inoculated in solid medium containing insoluble calcium phosphate supplemented with 0%, 1%, 2,5%, 5,0%, e 7,5% of NaCl, in triplicate. To the solubilization of phosphate in relation to pH, the strains were inoculated in solid medium containing insoluble calcium phosphate under pH 5,5 and 7,2, in triplicate. All plates were incubated to 25^{0}C for 17 days. It was performed 5 assessments, being the first 5 days after inoculation, and the other in 3 days intervals, where the presence of the clear halo, around the bacterial colony, indicated the solubilization of phosphate. After this, it was calculated the index of solubilization (IS), expressed by the relation of the mean diameter of the halo of solubilization by the mean diameter of the colony. Even the strains being of the same genus, only the UAGF14 was able to solubilize inorganic phosphorus. The pH was not a limiting factor to the solubilization, however, in the pH 7,2 the strain UAGF14 had better result. In relation to salinity, UAGF14 had better performance in the concentrations 0%; 1% and 2,5%. It as concluded that only the strain UAGF14 presents ability to solubilize inorganic phosphate under saline conditions and variable pH, allowing it to be used with efficiency in the vegetable growth in these adverse condition.

Keywords: phosphorus, plant-bacteria interaction, plant growth promotion.