Rock phosphate solubilization by rhizobacteria and endophytic associated with maize (*Zea mays* L.)

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Phosphate fertilizers are largely used for improving soil fertility. However, the use of less reactive phosphates requires the activity of phosphate solubilizing microorganisms. Some bacteria possess the ability to solubilize phosphate and increase the bioavailability of this nutrient in the soil-plant system. The aim of this work was to isolate and to characterize the phosphate solubilization potential of rhizobacteria and endophytic bacteria from *Zea mays*. Rhizobacteria were isolated from *Zea mays* rhizosphere soil cutivated without phosphate fertilizer and with Araxá rock phosphate. Thirty five bacteria obtained were evaluated for phosphate solubilization of rock Araxá jointly 10 endophytic bacteria obtained from collection of National Research Center mayze and Sorghum. Solubilized phosphate was quantified by molybdenum blue method at 880 nm after 72 h. The pH medium was also measured. Strains were identified based in the 16S rDNA gene. Furthermore, was evaluated the organic acid production for strains more efficient. The results were subjected to variance analysis and compared by Scott-Knott tests ($P<0.05$). *Pantoea ananatis* and *Pantoea* sp. showed major phosphate solubilization capacity, releasing 75 mg L -1. Other strains of the *Enterobacter* and *Klebsiella* genera, released 54 until 69 mg L -1, but some strains these genera showed also low potential for solubilization. Lower values of pH and acid production occurred in the samples with more phosphate released. It was found citric, acetic and latic acids. Citric acid was the most produced by efficient strains, aproximated 120 mg L -1. Thus, the phosphate solubilization capacity was influenced by strain evaluated. Moreover, the acid production certainly contributed to the dissolution of phosphate from rock Araxá, as has been reported in several experiments.