

**TITLE:** SELECTION OF PHOSPHATE SOLUBILIZING RHIZOBACTERIA FROM BRAUNA TREE (*Melanoxylon brauna* Schott).

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**ABSTRACT:**

Brauna is a leguminous tree, native to Atlantic Forest, known for the high quality of its wood. Both the very slow growth rate and the over extraction is the causes of risk of extinction. In addition, the production of its seedlings is difficulty because of the high mortality rate when under nursery conditions. Thus, selection and identification of plant growth promoting rhizobacteria associated with the brauna in field condition maybe a promising strategy to increase survival and promote the growth of this plant. The objective of this work was to select bacterial isolates from the rhizosphere of brauna able to solubilizing phosphate (SPR), aiming at biotechnological use in promoting plant growth. Sampling was carried out in Leopoldina-MG, and root fragments were collected at random points at 20 cm depth in one radius 2 m of the adult plant, forming a composite sample. Ten grams of soil adhered to root were used for bacteria isolation, using serial dilution in saline solution, and aliquots dispensed onto the nutrient agar medium. For the isolation of sporulating bacteria, the dilutions were heated at 90 °C for 10 min and aliquots were distributed over the potato-dextrose-agar medium (BDA). After obtaining pure cultures, the isolates were inoculated in insoluble phosphate medium (CaHPO<sub>4</sub>) and evaluated during 15 d. The SPR were classified as early, which solubilization occurred until the third day; and late, which began after the third day. The solubilization index (SI) was calculated using the formula:  $SI = \frac{\text{Ø of the solubilization halo}}{\text{Ø of colony}}$ . The experiment was conducted in a completely randomized design and the data were submitted to ANOVA and the averages were compared by Tukey's test ( $p < 0.05$ ). A total of 19 isolates were obtained, being 18 SPR. Of these, only the BA06 isolate was classified as late. The SI ranged from 1.56 to 7.02, being this highest SI by BA12. We can conclude that there are SPR in the brauna rhizosphere, and the isolate BA12 present high potential to be used as inoculum during brauna's seedling production.

**Keywords:** phosphate, rhizospheric soil, brauna.

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