

TITLE: MORPHOLOGICAL CHARACTERIZATION AND AMYLOLYTIC ACTIVITY IN BACTERIAL ISOLATES FROM FORAGE PEANUT

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ABSTRACT:

The evaluation of the morphological characteristics of native rhizobia is the first step in the identification of new taxonomic groups of these microorganisms and they provide important information for the classification and grouping of strains. In addition to FBN, rhizobia can produce hydrolytic enzymes of biotechnological importance. Although enzymes occur widely in plants and animals, those of microbial origin represent the best sources due to their wide biochemical diversity. Morphological methods and amylolytic enzyme detection were used in the present study to characterize bacterial isolates from forage peanuts (*Arachis pintoi*). In the morphological characterization, the isolates were inoculated for five days at 29° C containing solid YMA medium with congo red indicator. The strains were characterized in terms of shape being classified into flat colonies, domes and conics and as to the appearance being characterized as translucent, milky, opaque and glossy white. To verify the amylolytic activity, the bacteria were inoculated in solid YMA medium with addition of starch and after growth 20 µl of Iodine was added under the colonies to reveal the halo indicating the amylolytic activity of the strains. The Enzymatic Index (EI) was measured using the formula: halo diameter / colony diameter where halos \geq 2 cm were considered positive. Among the 30 isolates evaluated, 16.66% presented flattened colonies; 46.66% domes and 36.66% conics. Thirty percent showed to be translucent; 20% milky; 43.33% opaque and 6.66% glossy white. As for the amylolytic activity, of the 30 isolates evaluated, 53.33% had a positive enzymatic index, while 46.66% had a negative enzymatic index. From the results obtained, it can be concluded that the strains of rhizobia evaluated presented great morphological diversity and half of them have the capacity to produce amylolytic enzymes with potential for biotechnological exploration.

Keywords: Amylase, morphophysiology, rhizobia.

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