TITLE: BIOPROSPECTION OF POTENCIAL PROBIOTIC *BACILLUS* SP ON SERGIPE, BRAZIL SOILS

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ABSTRACT:

Probiotics are non-pathogenic living organisms, which when administered in adequate amounts, confer benefits to the health of the host. The microorganisms most used for this purpose belong to the genera *Saccharomyces, Lactobacillus and Bifidobacterium*. However, some bacteria of the genus *Bacillus* have a proven probiotic effect. In fact, there are some products containing these bacteria approved for use in humans along the world, including Brazil. The formation of endospores, common to *Bacillus* species, has some advantages over other probiotic organisms, since they do not require refrigeration or stabilizing food matrices. The objective of this work was to isolate strains of the genus *Bacillus* endowed with probiotic properties from Sergipe (Brazil) soil samples. The identification of the strains was performed by macroscopic and microscopic morphological observations, resistance to heat and antimicrobial, motility, hemolytic activity and acid pH resistance. The probiotic potential of the isolated strains was conducted from the quantification of activities, protease, lipase and amylase. They are carried out, respectively, on skim milk agar, nutrient agar enriched with egg yolk and starch agar. These activities were measured through the observation of the degradation halo of each substrate. Altogether, 43 lineages with morphological and metabolic characteristics of the genus *Bacillus* were isolated. 29 showed high protease activity, while 6 showed high amylase activity and 9 presented high lipase activity. The six strains that demonstrated high amylase activity also showed marked protease activity. Finally, one of the isolates showed high performance in all probiotic properties. Given the importance of the *Bacillus* genus in the field of probiotic microorganisms, the present work presented strains that exhibited some of the important properties of these organisms, which opens perspectives for the development of new products.

Keywords: Probiotics, *Bacillus*, Protease, Amylase, Lipase.

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