TITLE: SCREENING FOR THE POTENTIAL PROBIOTIC YEAST STRAINS FROM PRODUCTION OF NOVEL FERMENTED FOOD

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ABSTRACT:

Only yeasts *Saccharomyces boulardii* and *Kluyveromyces marxianus* are marketed as probiotic for humans). However strains of *Saccharomyces cerevisiae* are being widely tested as probiotics. However, many potentially probiotic microorganisms present in different food products are still unknown. Spontaneously fermented foods may constitute a reservoir for strains with potential probiotic characteristics several naturally fermented products, especially lactic acid bacteria and yeasts. The objective of this study was to evaluate the probiotic properties of yeast isolated from Brazilian food products. The probiotic properties were evaluated by tolerance to low pH and bile, surfaces properties (aggregation, co-aggregation and hydrophobicity). A total of 116 yeasts belonging to Culture Collection of Agricultural Microbiology (CCMA), the Federal University of Lavras, isolated from fermentations processes cocoa (60 isolates), kefir (14 isolates) and indigenous beverage (42 isolates) were studied. Upon exposure to acidic conditions and temperature 37° C, similar to those found in the gastro tract intestinal, 83 yeasts including species of *Kluveromyces marxianus*, *Saccharomyces cerevisiae*, *Pichia membranifaciens*, *Rhodotorula mucilaginosa*, *Pichia guilliermondii*, *Candida metapsilosis*, *Pichia caribbica*, *Candida orthopsilosis*, *Candida azyma*, *Pichia kluveri*, *Hanseniaspora uvarum, Candida lusitaniae* and *Hanseniaspora opuntiae* were selected. All the 83 isolates could tolerate bile salts at 0.3 % (w/v) (oxgall) for 3 hours. However, the growth and time of adaptation in the bile media was strain dependent, some isolates (26) grew and adapt better. These 26 isolates were submitted to hydrophobicity, auto-aggregation and co-aggregation, 15 isolates were selected. All isolates were highly hydrophobic. For the values of hydrophobicity and auto-aggregation, the highest values did not differ statistically to 5% of the values found for the commercial isolate *Saccharomyces boulardii*. For the co-aggregation test, the commercial isolate was among the lowest values found. In conclusion, with the procedure employed in this research we selected 15 yeasts capable of surviving the low pH in the stomach and also the environment of the human intestine, high hydrophobicity, and high ability to self-aggregate and co-aggregate, which make them suitable as potential probiotic strains.

Keywords: Probiotics microorganisms, Yeast, acid tolerance, *Saccharomyces boulardii*

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