

TITLE: IDENTIFICATION AND CHARACTERISATION OF THE MICROBIAL POPULATION OF MILK KEFIR GRAINS FROM VIDEIRA SANTA CATARINA

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ABSTRACT:

Kefir is a fermented milk traditionally made from a starter culture, which consists of numerous bacteria and yeast species bound together in an exopolysaccharide matrix produced by certain lactic acid bacteria (LAB). Kefir grains are an example of symbiosis between yeast and bacteria. Kefir has proven probiotic properties and contains large amounts of AA, proteins, phosphorus, and calcium. The aim of the present study was to describe and identify the microbial population in traditional kefir grains, displaying in vitro properties related to their probiotic potential. Kefir has been accredited with antibacterial, antifungal and antitumoral activities among other beneficial attributes. For this purpose, sample of kefir grains were obtained from Videira (SC). Ten grams of sample were diluted and plated on modified MRS agar, M-17 agar and YM agar. Bacteria and yeast isolates from kefir grains were identified and characterized using the ability to tolerate acidic pH and resistance to bile salts as restrictive criteria for probiotic potential. Lactic acid bacteria (70.5%) were the major isolated group identified and followed by yeasts (29.5%). The bacterial population varied between 10^9 to 10^{11} UFC/g and yeast between 10^4 to 10^5 UFC/g. Optical microscopy showed that the microbiota was dominated by bacilli (short and curved long) and cocos Gram-positive cells growing in association with, lemon-shaped yeasts cells. The isolates showed good viability at pH 4 and pH 3, but none of them survived at pH 2 (values below detection limit) and were able to resist 0.1 and 0.3% of bile salts and 0.4% of phenol did not affect the viability after 4 h of incubation. These results suggest that are important to understand the diversity of lactic acid bacteria and yeast in Kefir grains. The microorganisms identified have characteristics for use as probiotics, as they demonstrate good behavior on the acidic conditions, growing in the presence of bile salts and phenol efficiently fulfilling the desired characteristics in the selection process.

Keywords: Latic acid bacterial, yeast, probiotics

Development Agency: UNIEDU, Artigo 170, Universidade do Oeste de Santa Catarina Videira.