MICROBIAL PROFILE AND COMPOSITION OF POTENTIAL PLANT BASED KEFIR FERMENTED BEVERAGES

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Kefir is a fermented milk, carbonate with mildly acidic flavor, traditionally produced by the fermentation of milk through a complex microbiota in symbiosis (lactic bacteria, acid-acetic bacteria and yeasts) present in its grain. However, the search for plant based foods have increased, creating an ideal setting for the development of fermented beverages of plant origin. Thus, this study aimed to develop kefir beverages based on vegetable extract (peanut, Brazil nut and coconut), with the addition of xanthan gum and inulin, in addition to determining their centesimal composition, as well as identifying the profile of microbial strains present in plant beverages. Fermentation was carried out by inoculating 5% of the milk grains in 50 g of water-soluble plant extract, containing 0.26% (w/v) of xanthan gum and 3% (w/v) of inulin. The vials containing kefir grains and substrate were incubated at 25 °C for 24 h. The centesimal composition of vegetable kefir beverages was determined in triplicates by methods described by the AOCS. The following viable cell count analyses were performed by the duplicate surface plate method: total count in Plate Count Agar (PCA); lactobacillus in De Man Agar, Rogosa and Sharpe (MRS); lactococcus in M17 Agar (M17) and, finally, yeasts in Dicloran Rose-Bengal Cloamphenicol Agar (DRBC). The beverage fermented with water-soluble peanut extract (EHA) presented the highest moisture content (94.58%). Regarding the ash content of the formulations, these showed no difference, and 0.17% were found in the beverage produced with brazil nut water-soluble extract (EHCB). Regarding proteins and lipids, the formulation with AE sit presented a higher protein (1.09%) and lipid content (4.79%). Finally, the formulation with coconut water soluble extract (EHC) presented the highest carbohydrate content (6.90%). According to the results for microbiological analyses, both plant-soluble hydrosoluble substrates provided ideal conditions for the development of bacteria and yeasts. The beverage produced with EHA presented the highest number of microorganisms, with a total count of 8.63 log CFU/ml; 8.52 log CFU/ml for lactobacillus; 8.48 log CFU/ml for lactococcus and 5.23 log CFU/ml for yeasts. While the EHCB-based formulation presented a total count of 8.31 log CFU/ml; 7.92 log CFU/ml for lactobacillus; 8.41 log CFU/ml for lactococcus and 5.15 log CFU/ml for yeasts. Finally, the beverage produced with EHC presented a total count of 8.02 log CFU/ml; 7.96 log CFU/ml for lactobacillus; 8.29 log CFU/ml for lactococcus and 4.96 log CFU/ml for yeasts. Therefore, the results obtained show that the water-soluble extracts of peanuts, Brazil nuts and coconut, added xanthan gum and inulin, provide an adequate matrix for the development of new fermented beverages with bioactive potential, meeting the growing demand for vegetable-based products.

Keywords: kefir, brazil nuts, coconut, plant based food