

Microbiological and Physicochemical Evaluation on the Fermentation of Water Kefir Using Brown Sugar and Palm Sugar

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Abstract

Probiotics are live microorganisms which when administered in sufficient amounts confer a health benefit on the host. They are gaining increasing interest from the public due to their health benefits. Probiotics can be administered as food supplements or food ingredients. Particularly, the fermented beverage is a popular vehicle to deliver probiotics. Therefore, present work aimed to develop a non-dairy probiotic water kefir beverage using brown sugar and palm sugar that is suitable to be consumed by vegans and consumers with lactose intolerance and milk allergies. Brown sugar and palm sugar were prepared as the substrate for kefir grains, in the ratio of 2:1, which were 50 g/L and 25 g /L respectively. The fermentation process was carried out for 72 hours. The fermented water kefir was collected every 6 hours interval to evaluate the microbiological and physicochemical characteristics of the water kefir. The result indicated that the longer fermentation time produced lower pH values, higher lactic acid, higher reducing sugars, and lower total soluble solids. In conclusion, the ideal fermentation time to produce water kefir using brown sugar and palm sugar was 48 hours, with greater amount of lactic acid bacteria (6.43×10^6 CFU/mL), yeasts (7.23×10^6 CFU/mL), and acetic acid bacteria count (8.07×10^6 CFU/mL).

Keywords: Fermentation; Water kefir; Probiotics; Brown sugar; Palm sugar.