

FERMENTATION OF APPLE JUICE BY PROBIOTIC BIFIDOBACTERIA

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Probiotics are living bacteria that, when given in sufficient doses, have positive effects on the host. And the main commercially available probiotic products are dairy, for this reason in this study the focus was on the fermentation of commercial, unfiltered apple juice by 5% inoculum of 6 *Bifidobacterium* monocultures for 24 hours at 37 degrees in anaerobic circumstances before being stored for eight weeks at 4 degrees. Afterwards, two nitrogen sources were utilized to investigate its possible effect on the viability and metabolism of the bacteria, and three distinct types of *Bifidobacterium* strains were selected from the first six. pH, viability of the bacteria, Total phenolic compound and antioxidant capacity was measured at 0, 8 and 24h hours of fermentation and at 2, 4 and 8 weeks of storage. Apple juice was found to be a promising medium for cultivating various *Bifidobacterium* strains. This substrate met the requirements for probiotic products to exert health properties and proved to be sufficient for strong propagation of probiotics, despite differences in growth and fermentation among the different strains. The addition of nitrogen sources also showed potential in promoting microbial growth, with varying effects on total phenolic content and antioxidant capacity depending on the specific strain and nitrogen source. At week 4, all strains still revealed a population number over log 7 CFU/mL, which means the juice had in its composition enough probiotics to have health benefits. After week 8, only *B. longum* Bb46 population was lower than log 7 CFU/mL.