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Production of a new functional Aloe Vera juice with *Enterococcus faecium*

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Introduction. The emergent interest of consumers by functional foods has been raising the market of fermented food¹. Fermented plant material beverages stand out from fermented food in general, since their consumption presents no risk of intolerance and allergies associated with dairy food. *Aloe vera* has been used to varied medical purposes due to their bioactive compounds². Lactic acid bacteria, generally used in fermented beverages, are known also for their potential health and nutritional benefits³. This study aimed to produce a new fermented *Aloe vera* juice using *Enterococcus faecium* isolated from breastmilk.

Methods. To obtain the juice, *Aloe vera* gel was treated enzymatically with cellulase. The juice was inoculated with *E. faecium* at 37 °C and initial pH 4.7 ± 0.2. Biomass growth and pH were evaluated along the fermentation. Glucose consumption and organic acids produced were analyzed by HPLC, and Total phenols were determined by Folin- Ciocalteu colorimetric method. Results were compared with fermentations run with a commercial *Lactococcus Lactis* strain.

Results. *E. faecium* was able to grow in *Aloe vera* juice, without any other nutrient supplementation, producing a fermented drink. *E. faecium* grew faster (12 h adaptation period) and consumed glucose quicker (48 h) than *L. Lactis* (24 and 60 h respectively). The pH decreased to 3.0 due to lactic acid production, 3.02 ± 0.04 g/L by *E. faecium* and 3.0 ± 0.6 g/L for *L. Lactis*. Other acids of interest were also produced by both bacteria such as succinate, format, acetate, propionate, and valerate. *E. faecium* produced also more phenolic compounds (352 ± 32 mg GAE/L) than the commercial strain (253 ± 17 mg GAE/L). **Conclusion.** *Aloe vera* is suitable to be fermented by the probiotic *E. faecium* bacteria, boosting bioactive metabolites in the obtained juice, which after process optimization may result in a new functional beverage.

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