



## EVALUATION OF ALOE VERA JUICE AS A SUBSTRATE FOR PROPAGATION OF LACTIC ACID BACTERIA.

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**Introduction.** Commonly, lactic acid bacteria considered probiotic are incorporated into dairy products to obtain biotransformed food. However, there are other non-dairy substrates which, due to its composition, are feasible to promote the growth of bacteria, one of them is the Aloe vera<sup>1</sup>. It is recognized by its nutritional characteristics and therapeutic use in the treatment and prevention of gastrointestinal diseases<sup>1</sup>. Aloe vera has four properties: anti-inflammatory, fungicidal, antibiotic and tissue regenerative agent.

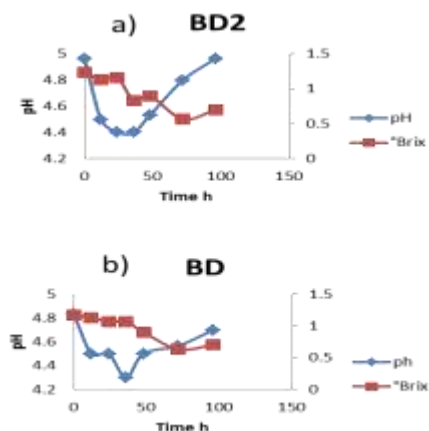
The objective of the work was to evaluate juice of Aloe vera as substrate for lactic acid bacteria through a symbiotic fermentation.

**Methodology.** The gel of Aloe vera was homogenized, subsequently led to an enzymatic treatment with cellulase, filtered, clarified and sterilized. A qualitative phytochemical analysis was performed to the juice. He was fermentation by inoculating  $1 \times 10^6$  cfu/mL of lactic acid bacteria in 100mL of juice in anaerobic conditions, incubating at 37°C for 120 hours, monitoring pH and °Brix.

**Results and discussion.** Analysis phytochemical (table 1), demonstrates the presence of the same compounds both in the gel of Aloe vera and the juice after enzymatic treatment. (Dagne y col., 2000; Choi y Chung, 2003; Ni y col., 2004; Hamman, 2008), they report the presence of phenolic compounds, carbohydrates, lipids and organic compounds such as steroids.

**Table 1.** Chemical components of the Aloe plant vera (barbadensis Miller)

Compounds	Test	Aloe vera Gel	Aloe vera juice
Unsaturation	KMnO <sub>4</sub>	+	+
Oxidrilos phenolic	FeCl <sub>3</sub>	+	+
Steroids and triterpenoids	Libermann-Buchard	-	-
Cumarins and lactons	NaOH	+	+
Sesquiterpen lactonas	Baljet	+	+
Saponins	Salkowski	-	-
Lactons	NaOH	+	-
Flavoniods	Shinoda	-	-
Alcaloids	Dragendorf y Wagner	-	-
Reducing sugars	Molisch	+	+



**Figure 1.** Kinetic of pH and °Brix of the bacterium BD2 (a) and BD (b).

The biomass obtained for BD2 was 0.2332 g and BD was 0.2123 g fresh weight. Contreras-Pinzón et al. (2007) They suggest that the use of acemananos and glucomananos of Aloe vera increases the growth of lactic acid species and the production of some antimicrobial metabolites. The kinetics of °Brix and pH decrease during the first 36 hours, which can be attributed to lactic acid production since most of the lactic acid bacteria are able to reduce the pH of the environment by acetic and lactic acid production creating an adverse environment for the proliferation of gastrointestinal pathogens (Shah, 2001)

**Conclusions.** Juice of Aloe vera is not milk substrate that can be used for the propagation of lactic acid bacteria. It is possible to develop a fermented beverage of Aloe vera with lactic acid bacteria using a symbiosis that could serve as an aid for restoration of intestinal flora.

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### References.

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