

Diversifying the offer of regional plant-based functional foods: development of a probiotic fermented drink of beets and strawberries.

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Introduction: The consumption of fermented products has risen due to their proven beneficial effects, in particular on the intestinal microbiota. They are mainly home-made, which could imply risks for public health and lack of standardization. The state of Santa Fe in Argentina is one of the main producers of strawberries and other vegetables such as beets in the region. The aim of this work was to add value to regional produce by developing a fermented drink as a potential plant-based functional food.

Methods: Juice from beets and strawberries (20% and 10% w/v respectively) was obtained in a food processor, distributed in bottles and pasteurized. Drinks were then inoculated (1% v/v) with washed cultures of the probiotic strain *L. plantarum* 299v (Lp299v) or with *L. plantarum* F1B-GW (isolate from strawberries, LpF1B) and incubated (37°C;16h). Microbiological counts, pH and soluble solids(SS), total phenols, antioxidant capacity, betalains, and color measurement. were determined pre and post-fermentation.

Results: Fermented drinks (pH 3.5/SS 4.6°Bx for both Lp) with 8.8 and 8.7 logCFU/ml for Lp299v and LpF1B, were obtained. Controls (C) maintained their pH and SS. Microbiological indicators were satisfactory. Fermented drinks showed greater intensity of color and red tone than C (Lp299v >LpF1B) and betalains were also increased by lactic fermentation (Lp299v>LpF1B). The content of total phenols did not change whereas a significant increase in the antioxidant capacity for fermented drinks was observed.

Discussion: Fermented drinks were safe for consumption and obtained in a standardized way, with levels of *L. plantarum* 299v or the autochthonous strain *L. plantarum* F1B-GW according to the recommended doses for probiotic foods. They also presented enhanced color and antioxidant capacity, and were enriched with compounds with bioactive potential as betalains. In conclusion, a plant-based fermented drink was obtained based on regional produce with potential functional properties to be further studied.