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## Production of $\gamma$ -aminobutyric acid in whey protein juice during fermentation by *Lactobacillus plantarum*

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**Background:** Today, demand for functional food has increased. GABA, as a bioactive agent, has many potential applications in the functional food industry. The general objective of this study was to evaluate the potential of probiotic bacteria and *Lactobacillus plantarum* in the whey drink containing strawberry and banana concentrates and to evaluate the sensory properties of this beverage during storage.

**Materials & Methods:** *Lactobacillus plantarum* was injected with 108 to whey protein juice containing concentrate of banana and strawberry adding 250 mM glutamic acid. Viability, pH, GABA production and sensory evaluation of the treatments were evaluated for 30 days at 4 and 25° C.

**Findings:** *Lactobacillus plantarum* has the potential for producing GABA in all treatment beverages. The highest amount of GABA production (195.5 ppm), the probiotic bacterial viability (8.01 log<sub>10</sub> cfu/ml) and pH (3.81) after 30 days of storage in whey drink containing banana concentrate kept at 25° C. It turned out sensory evaluation results showed that the overall acceptance scores of all treatments were not significantly different ( $p>0.05$ ).

**Conclusion & Significance:** *L. plantarum* can have a viable function and produce GABA in a whey drink containing concentrate of banana and strawberries, without undesirable effects on the sensory properties of the beverage. Probiotic-based GABA-in beverages can be taken as a positive step in the development of functional products and the promotion of consumer health.

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