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Development and Sensory Evaluation of a potential gluten free bread using Chia sourdough

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Generation of novel functional foods are essential for agriculture industry. Sourdough technology is widely used in bread making (leavening properties) and is mainly represented by lactic acid bacteria (LAB) and yeast, whose fermentation confers to the resulting bread its characteristic features such as palatability and high sensory quality. Chia seeds are widely consumed for various health and nutritional benefits, their gluten free properties are essential for celiac patient and in gluten intolerant diet. However, the production of a gluten free bread is a challenge due its low quality and for exhibit poor mouth feel and flavor. Food industry try to replace absence of gluten mainly with starch, protein based ingredients and hydrocolloids in order to mimic the viscoelastic properties of gluten. Fermentation of Chia with starter culture, releases aminoacids and water-soluble polysaccharides that could improve nutritional sensory and technologically food products. Sensory evaluation of *Weissella cibaria* C-2 inoculated in chia sourdough breads compared with its unfermented and the reference, was conducted by 56 people recruited from the University of Alberta campus. Demographic showed a 44% of population studied consume bread 2-3 times a week, 47% like bread and a 26% consider bread as a favorite bakery product. A 9-point hedonic scale where used to classified different samples. Overall, participants moderately disliked the reference and its texture. Its taste was only slightly disliked. Consumers slightly disliked the 20% sourdough's taste, texture and the bread overall. The 30 and 40% breads scored the highest, with all categories falling into neither like or dislike. A duo trio test was performed in which 70% of participants could tell that the samples were not the same ($p \leq 0.005$). Therefore, using fermented versus unfermented chia seed caused differences in sensory qualities. All these data are essential for targeted development of specific functional food products in future projects.

Keywords: Lactic acid bacteria, fermentation, chia seed, sourdoughs, sensory panel.