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Functional Food Crackers from Cactus Pears: Physico-chemical and Sensory Properties

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Abstract

The effects of life-threatening diseases have compelled food scientists to look closer at nopalitos, as an ingredient with promising results in remedying some ailments, as a functional food.

The developed nopalitos crackers consisted of the young cactus pear cladodes as an ingredient in different forms, either dried or as liquid pulp.

Cracker samples were formulated constituting varying contents of nopalitos as 0% Nopalitos Cracker (control) (CC), 9.48% Nopalitos powder Cracker (NPC) and 37.39% Liquid pulp Cracker (LPC). The cracker ingredients were rolled oats, nopalitos powder or liquid pulp, sunflower seeds, poppy seeds, salt, rosemary, coconut oil and water. Ninety-five consumers tasted all the samples. Nopalitos powder cracker (NPC) scored lowest (4.46) on consumer acceptability and differed significantly ($p \leq 0.05$) from the Control cracker (CC=6.11) and Liquid pulp cracker (LPC=6.11).

The sensory analysis of the three cracker samples was based on the flavour, mouthfeel, taste and appearance. The sensory properties examined were starchy, sour, crunchy and coarseness with the usage of the Just-about-right (JAR)-scale. The correlation matrix ($\alpha = 0.05$) with regards to overall liking for Sample CC depicted a two weak positive correlation involving flavour namely the mouthfeel (0.261), and with the mouthfeel correlation with the appearance was (0.220), meaning an improvement in mouthfeel and appearance would better the JAR%. Sample NPC showed four weak positive correlation which included flavour, namely taste (0.252), mouthfeel (-0.388) and appearance (-0.235). Sample LPC resulted in a moderate positive correlation on the mouthfeel involving the appearance (0.519). All three samples had no JAR attributes and are in need of reformulation.

When nopalitos were introduced, variations occurred in the colour, pH, minerals, fat, fibre, crude protein and antioxidants. The nopalito powder cracker (NPC) had the highest values for most of these parameters due to its concentrated nature.