

DEVELOPMENT OF A NOODLES PRODUCT FROM CASSAVA (*MANIHOT ESCULENTA* CRANTZ)

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Abstract: Cassava (*Manihot esculenta* Crantz) is a locally available root crop with different varieties. Cassava flour can be proposed as a substitute for wheat flour due to its texture and nutritional composition. Wheat flour is used as the major gluten source for manufacturing of noodles. Due to the gluten related health conditions; celiac disease, non-celiac disease, wheat allergies, this research aimed to develop a noodle using locally available cassava flour in place of wheat flour and develop the standard parameters for Cassava Noodles (CN). According to the previous research records, Kirikawadi variety is selected for noodles preparation due to its low-level toxicity in long-term use with short-term harvesting period. The production method of cassava noodles with encouraging results was selected using different procedures. The standard parameters of textural characters based on Texture Profile Analysis (TPA), cooking loss, and water uptake were analysed for the CN products and compared with Wheat Normal Noodles (WNN) and Wheat Instant Noodles (WIN). Gluten and Cyanide content levels of CN were also analysed. The results of the TPA showed that CN performed high quality standards on hardness (89.8 ± 1.64), adhesiveness (0.083 ± 0.05), springiness (2.13 ± 0.45), cohesiveness (0.44 ± 0.09), Gumminess (39.36 ± 7.98) and chewiness (0.84 ± 0.30) compared with WNN (96.93 ± 37.83 , 0.09 ± 0.07 , 2.69 ± 0.63 , 68 ± 41.75 , 1.95 ± 1.56 , respectively). Cassava noodles exhibited high value of cooking loss ($17.47 \pm 0.01\%$) compared with WNN ($5.28 \pm 0.00\%$). Consequently, the incorporation of food additives such as binding agents and other food ingredients holds the potential to enhance the quality of CN by reducing cooking loss. Water uptake of CN showed a lower value ($105.30 \pm 0.164\%$) compared with WNN ($130 \pm 0.0\%$) and no significant difference ($P > 0.05$). Gluten and cyanide content also not detected in developed CN. This study established the standard parameters of CN, emphasizing cassava flour as a substitute for wheat flour and ensuring the harmonization of Sri Lankan root crops with human well-being.

Keywords: Cassava noodles; Development procedure; Standardization; Wheat noodles