Physical Properties of Black Monkey Orange Fruit and Seeds: A Preliminary Analysis for Food Processing Utilization

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Abstract

Strychnos madagascariensis is an underutilized South African fruit-bearing tree. The pulp is the primary consumable component of the fruit; however, the seeds hold the potential as a food source due to their high nutrient composition. The aim of this research was to determine the physical properties of Strychnos madagascariensis fruit and seeds to aid in food processing. Fruits were collected at four progressive maturity stages from Bushbuckridge, South Africa. Fruit dimensions such as weight, size and composition (pulp, shell, and seeds) were measured, as well as the seed axial dimensions (length, width and thickness). Other parameters such as sphericity, aspect ratio, geometric mean diameter, and surface area were calculated using the axial dimensions. The pulp comprised 50.4% of the total fruit weight, followed by the shell 30.9% and seeds 18.7%, this distribution remained consistent throughout the four maturity stages. Furthermore, the length, width and thickness of the seeds were found to be approximately 2.45 cm; 1.91 cm and 0.91 cm (which showed similarities to that of lychee seeds from literature, 2.38 cm, 1.55 cm and 1.29 cm) respectively, producing a sphericity value of 0.66 (similar to pumpkin seeds from literature, 0.61). Only slight variations in parameters were observed between fruits collected at progressive maturity stages. The seeds showed significant ($p>0.05$) similarities to lychee and pumpkin seeds, in terms of size and shape, respectively. The data presented in this research may serve as a basis for the development of processing procedures and equipment.

Biography: Kiana van Rayne

Kiana van Rayne is a final year Masters student, in the field of botany.