Physicochemical, Microbial and Sensory Qualities of African Star Apple (*Chrysophyllum albidum*) Juice Treated with *Moringa oleifera* Leaf Extract.

Ogunbiyi Bashiru Iyanda* & Noah Abimbola Aduke

Department of Food Technology, The Federal Polytechnic, Ilaro, Nigeria.

*Corresponding author email: bashiru.ogunbiyi@federalpolyilaro.edu.ng

Introduction

African star apple (*Chrysophyllum albidum*) is a wild underutilised tropical plant of the *Sapotaceae* family. It is found in tropical and sub-tropical African countries like Nigeria, Niger Republic, Uganda, Cameroon, and Côte d'Ivoire. African star apple is rounded or oval in shape. It is called different names in Nigeria: Agbalumo (Yoruba), Udara (Ibo), Agwaluma (Hausa) and Andehya (Igala) (Ogunleye et al., 2020). The fruit is a seasonally found surplus when in season and usually harvested from December to April. It is highly susceptible to microbial attack and pests and undergoes rapid deterioration. This reduced the nutritional content, fruit quality and marketability. The ripe fruit is consumed fresh or processed into juice or a novel product. This study investigates the physicochemical, microbial, and sensory qualities of fruit juice produced from African star apple, treated *M. oleifera* leaf extract, and honey.

Materials and methods

African star apple, moringa leaf, and honey were sourced from retail market in Igua, Ogun State. The juices were produced using the method of Arueya & Ugwu (2017), with a little modification.

The fruit juices were analyzed using standard methods to evaluate physicochemical characteristics (pH, total soluble solids, titratable acidity, and vitamin C content), microbial qualities (total viable count, fungi count, coliform count, and salmonella count) and sensory attributes was evaluated using the method outlined by (Arueya, &Ugwu, 2017).

Results and discussion

The physiochemical characteristics, sensory and microbial qualities of fruit juice from the blends of African star apple (ASA) treated withmoringa leaf extract (MLE) are presented in table 1. Microbial qualities highlighted a marked reduction in total viable counts, from 5.0×10^3cfu /ml (control) to 2.0×10^3cfu /ml, fungi count ranged from 4.0×10^3cfu /ml to 1.5×10^3cfu /ml, coliform count ranges from 4.0 cfu/ml to 1.0×10^3cfu /ml and the total salmonella count ranged from 1.2×10^3cfu /ml to nil, underscoring the preservative potential of Moringa. Sensory evaluations indicated that the overall acceptability ranged from 6.00 (control) to 8.50, with the highest score attributed to the juice treated with 20% Moringa leaf extract.

Conclusion

These findings show the ability of Moringa leaf extract to effectively suppressed microbial growth and extending the shelf life of the Africa star apple juice, revealing the potential of blending indigenous fruits which is rich in nutrient, suitable to create functional beverages that meet consumer demand for both flavor and health benefits.

Keywords: Africa star apple, Moringa, Honey, Physiochemical, Microbial, Sensory