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Consumers' Sensory Perception of Fermented African Nightshades in Tanzania

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Abstract

African nightshades (ANS) are underutilised and neglected African indigenous vegetables regardless of their nutritional quality and high availability in Tanzania. This study seeks to assess the consumer acceptability and willingness to buy spontaneously fermented (SF) and controlled fermented (CF) *Solanum scabrum* (SS) and *S. villosum* (SV) relish. A 9-point hedonic scale was used to evaluate the fermented products' sensory attributes and overall consumer acceptability. In Kilimanjaro and Morogoro regions, 370 untrained consumers tested the relish. From the results, fermented relishes from SS-CF exhibited superior overall acceptability of 7.96 ($p < 0.05$). Also, it was liked much in other parameters such as colour, taste, texture, aroma, odor, saltiness, spiciness, sourness, and bitterness $p > 0.05$. Generally, the consumers liked other fermented relishes, SS-SF, SV-SF, and SV-CF, in all sensory parameters. Most consumers detected salt and sourness in the relish (85–90%); about 50% noticed bitterness. On the other hand, ugali (84–87%) and rice (62–67%) were the preferable staples to accompany the relish. At the same time, the amaranth (77–81%) and spinach (58–64%) were suitable vegetables to mix with the relish. Also, the majority preferred to mix relish with meat (80%) and fish (70%). The majority were willing to buy the relish (97–99%), and only 53–59% could pay 500 Tanzania shilling per 120 g of relish. Supermarkets (71–75%), kiosks (72–69%), markets (64–67%), open market/magulio (49–53%) and hotel (49–50%) were the proposed outlets for the relish. Both CF and SF relish can be recommended to be eaten alone, accompany foods, and mix with other foods. Therefore, relish can improve nutritional value, utilisation, livelihood and ensure the availability of ANS year-round.

Keywords: African nightshade, consumer perception, controlled fermentation, relish, sensory parameters, spontaneous fermentation, willingness to buy