

# Effect of Different Heat Treatments on Oxalic Acid Content, Physicochemical and Sensory Characteristics of Bottled Star Fruit (*Averrhoa carambola*) in its own Juice

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## **Abstract**

*Averrhoa carambola*, commonly known as star fruit, is a highly valued tropical fruit due to its unique flavor, high in vitamin, antioxidant, and dietary fiber content, which appeals to consumers who are health-conscious. The purpose of this study was to assess the sensory qualities and physicochemical properties of bottled star fruit (*Averrhoa carambola*) in its natural juice. Standardized processes were followed in the collection, processing, and bottling of fresh star fruits. Analysis was done on the physicochemical characteristics, such as pH, titratable acidity, brix value and ascorbic acid content in both fresh and processed product. A trained panel was evaluated the sensory aspects of the product using a nine-point hedonic scale to rate its general acceptability. The fresh and bottled star fruit reported pH of 3.87 and 3.93, titratable acidity of 0.40 mg/100ml and 0.36 mg/100ml (as citric acid) and brix value of 10 and 09 respectively. Ascorbic acid content was recorded as  $6.42 \pm 1.28$  mg/100ml and  $3.21 \pm 1.28$  mg/100ml in fresh and bottled star fruit respectively. Processing with pasteurization until  $70 \pm 02^{\circ}\text{C}$ , 3 min, exhausting  $80 \pm 02^{\circ}\text{C}$ , 05 min) and sterilization ( $100 \pm 02^{\circ}\text{C}$ , 25 min, 01 bar) were changed physicochemical characteristics of bottled star fruit compared to fresh fruit and no much alterations happened while the storage period. The panelists' positive reactions to the product were revealed by the sensory evaluation, which gave it moderate (07) marks for acceptance overall as well as for look, flavour, and aroma.

**Keywords:** *Calcium oxalate, Heat treatments, Maturity stages, Oxalic acid, Star fruit*