

## Abstract

Breadfruit (*Artocarpus altilis*) leaves are rich in bioactive compounds such as flavonoids, phenolics, and tannins, offering potential health benefits and making them suitable for functional food applications. This study explored their use in tea production, focusing on optimal drying conditions and the effects of carbonation. Leaves were dried at 40°C, 50°C, and 60°C for 6, 12, and 24 hours as preliminary study. Drying at 40°C for 24 hours was identified as optimal, resulting in moisture content below 5%, the highest antioxidant activity (59.85%), and favorable color characteristics. Further analysis compared carbonated and non-carbonated tea. Carbonation lowered the pH (4.081), indicating increased acidity, but did not affect total soluble solids ( $^{\circ}\text{Brix} = 6$ ). However, antioxidant activity decreased significantly in the carbonated tea (24.67%) compared to the non-carbonated version (50%). Carbonated tea appeared visually lighter with higher  $L^*$  values, improving appearance. Sensory evaluation using hedonic and Just-About-Right (JAR) analyses showed that carbonated tea was preferred in terms of color, aroma, sweetness, fizziness, and overall liking. However, JAR results indicated the carbonated sample needed more sweetness and had inconsistent mouthfeel. Overall, carbonation enhanced sensory appeal but reduced antioxidant content.

*Keywords:* Breadfruit Leaves, Tea, Antioxidant, Carbonation, Sensory