Physicochemical evaluation of vitamin C content and titratable acidity in fresh and commercially packaged fruit juices

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Abstract

Fruit juices are widely consumed due to their nutritional value, particularly their rich content of vitamin C. However, various processing and storage conditions may significantly influence the nutritional quality of commercially packaged fruit juices when compared to freshly prepared juices. The present study focuses on the quantitative evaluation of vitamin C content and titratable acidity in both fresh and commercially packaged fruit juices.

Six different fruits, namely orange, apple, pineapple, mango, lemon, and pomegranate, were selected for analysis. Fresh juices were extracted directly from the fruits, while packaged juices were obtained from commercially available brands. The determination of vitamin C content was carried out using the iodometric titration method, whereas acidity was analysed by titration with a standard sodium hydroxide solution.

The results revealed that fresh fruit juices contain comparatively higher amounts of vitamin C than packaged juices. This reduction in packaged juices may be attributed to processing techniques such as pasteurization, prolonged storage, and exposure to oxygen, which contribute to the degradation of vitamin C. Additionally, slight variations in acidity were observed between fresh and packaged samples.

In conclusion, the study indicates that fresh fruit juices are richer in vitamin C compared to packaged juices, while the latter show variations in acidity due to processing and preservation practices. These findings emphasize the impact of processing on the nutritional quality of fruit juices.

Keywords: Vitamin C, fresh fruit juice, packaged juice, iodometric titration, titratable acidity, nutritional analysis