



COMPARATIVE EVALUATION OF VITAMIN C LEVELS IN VARIOUS COMMERCIAL ORANGE JUICES AND FRESHLY SQUEEZED JUICE

Rhayane G. Q. Silva^{1*}, Gabriel S. Jacinto¹.

¹Universidade do Vale do Itajaí, Brasil. *rhayanequeiroz@icloud.com

INTRODUCTION

Vitamin C, or ascorbic acid, is a water-soluble vitamin with strong antioxidant properties, essential to the human body due to its involvement in several vital functions. However, it is a compound highly sensitive to light, heat, and oxygen, which can lead to its degradation during food processing and storage. This study analyzed the variation in vitamin C content across different types of orange juice, comparing freshly squeezed juice with commercially processed juices.

MATERIAL AND METHODS

Five orange juice samples were analyzed: juice extracted from fresh Pêra oranges (*Citrus sinensis*), nectar, whole juice, industrially processed juice, and powdered juice. The vitamin C content was determined using titration with potassium iodate solution, a method based on the oxidation of ascorbic acid. All analyses were performed in duplicate to ensure the reproducibility of the results.

The methodology for vitamin C quantification was based on the analytical standards of the Adolfo Lutz Institute. A total of 50 mL of each sample was diluted with 50 mL of distilled water. Subsequently, 10 mL of 20% sulfuric acid solution, 1 mL of 10% potassium iodide solution, and 1 mL of 1% starch solution were added. The samples were titrated with a 0.02 M potassium iodate solution until a blue endpoint was observed.

Vitamin C concentration was calculated based on the volume of iodate consumed during titration, relative to the exposure time to oxygen.

RESULTS

The approximate vitamin C content found in the analyzed samples was: 34 mg in freshly squeezed Pêra orange juice (*in natura*), 15 mg in orange nectar, 21 mg in whole juice, 32 mg in industrially processed juice, and 29 mg in powdered juice.

CONCLUSIONS

It was observed that the *in natura* (freshly squeezed) juice had the highest vitamin C content, while the nectar had the lowest. These results indicate that industrial processing, as well as the addition of water and sugars in some formulations, can significantly impact the concentration of this micronutrient, making fresh juice the best option for preserving vitamin C. Furthermore, industrialized juice samples are often artificially enriched with ascorbic acid and contain additives and preservatives in their composition.

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