Effect of Drying and Storage Methods on Vitamin C in Specific Fruits and Vegetables

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Abstract

This study investigated the effects of drying and storage on vitamin C content in nine samples of fresh fruits and vegetables. The vitamin C content in fresh samples, estimated by spectrophotometry, ranged from 1.6 mg/100 g in red apples to 76.6 mg/100 g in sweet peppers. During increased vitamin C content, dried sweet pepper has the highest value, 238.2 mg/100 g ,and dried spearmint has the lowest value, 3.8 mg/100 g. In the first week, the vitamin C content for oranges, apples, kiwis, sweet peppers, hot peppers, cab-bage, dill, parsley, and spearmint was measured respectively at 28, 8.8, 21, 181, 72.8, 17.6, 13.2, 38, 2 ,and 2. After four weeks, these values decreased to 12, 3.4, 11, 23, 8, 1, 3, 12.8, and 1 mg/100g dry sample. The highest vitamin C concentrations were observed in spearmint, dill, orange, and apple, with values reaching 322, 320, 315, and 309 mg/kg. Conversely, the lowest concentrations were detected in sweet peppers and parsley, amounting to 262 and 280 mg/kg. Furthermore, it was noted that vitamin C levels declined across all samples examined after a storage period of four weeks, with measurements of 215, 218, 220, 125, 182, 195, 213, 185, and 214 mg/kg. The highest rehydration ratio percentage was observed in dried cabbage, reaching 8.41, while the lowest was noted in oranges, amounting to 2.32. During the storage period, the rehydration ratio increased for samples of parsley, bell pepper, apple, orange, kiwi, and dill, from 3.32, 6.40, 3.35, 3.32, 3.00, to 2.96. In the initial period, it rose to 3.98, 6.74, 4.45, 4.57, 3.30, and 3.00 after four weeks of storage. The rehydration ratios for spearmint, hot pepper, and dried cabbage samples decreased after the four-weeks.

Ascorbic acid, Rehydration, Spectrophotometer, Titration, **keywords:** Dried fruits and vegetables, Vitamin C.

Introduction

Vitamins are organic compounds required in small quantities to build the body and main-tain overall functionality. However, excessive intake, particularly of fat-soluble vitamins (A, E, D, K), may cause toxic conditions and adverse health effects. Their deficiency also goes beyond the required limit, leading to the emergence of various diseases. Vitamin C, also known as ascorbic acid, is an organic compound that dissolves in water. It is a white and odorless crystal with a mild acidic taste. The compound has a molecular weight of 176.12 g/mol with chemical formula C6H8O6 and exhibits a specific polarized light rota-tion at +24 degrees at a temperature of 20°C. The acidity of vitamin C is attributable to the presence of the Endiol group between carbon atoms 2 and 3, which behave acidically. Unlike

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