

Levels of phosphorus in citrus fruits

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Abstract Phosphates are inorganic compounds, based on the element phosphorus, combined with oxygen to form phosphates, the form in which phosphorus is present in nature. Phosphates are essential for plant growth, crops, and human health. Phosphates have been used in processing and preservation of fruits and to protect the color of fresh vegetables and fruits destined for direct consumption. The researchers have found that a high intake of phosphates in human organism, which are increasingly used as food additives, appear to activate a metabolic pathway that stimulates the growth of the lung tumors. The purpose of this paper is to characterize freshly squeezed citrus fruits juices (pH, density and total acidity) and to determine the total phosphorus level (as phosphates) from different parts (peel, film and pulp) of citrus fruits (lemon, grapefruit and orange). Phosphates have been analyzed using molybdenum blue method with SnCl_2 as reducing agent at CAMSPEC M 330 spectrometer, after the method performances' verification. Limit of detection (LOD) and quantification (LOQ) were 0.0074 respectively 0.0393 mg/L. The obtained concentrations of phosphorus were between 1.1 and 18.6 mg/100g fruit material.

Keywords: phosphorus, molecular absorption spectrometry, citrus fruits
