

P18: DEVELOPMENT OF A DIGESTION METHOD TO ASSIST MULTI-ELEMENT DETERMINATION IN ROCHA PEAR BY ICP-MS

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The Rocha pear is a Portuguese variety of pear (*Pyrus communis* L.), harvested in August but available for consumption practically all year round, due to the refrigeration process. The West region of Portugal is classified as Protected Designation of Origin (PDO). This variety is responsible for 95% of the national pear production¹ and represents an important economic activity with exportations over 67 million Euros per year².

In the present work a method for pear digestion, prior to analysis by ICP-MS, has been developed and optimized. The elements analyzed were Cr, Mn, Co, Ni, Cu, As, Se, Sr, Mo, Cd, Sn and Pb. After the removal of seeds pear samples were freeze-dried and vacuum sealed until analysis. A graphite heating block (digiprep) was used for sample digestion. For method development different combinations of sample weight; high purity nitric acid; high purity hydrogen peroxide and digestion conditions were compared.

The results showed that weighing more than 0.7g of sample leads to an incomplete digestion evidenced by the presence of solid residues in the digestion tube. The same was noticeable in samples that had not been soaked in nitric acid overnight. In all analyzed samples Se, Sn and Pb were below the limit of quantification.

This work concludes that the most suitable digestion method for freeze dried pears is obtained by adding 8ml of ultrapure HNO₃ to 0.7g of sample. Samples are left in acid overnight and digested in a heating block for 130 min at 95°C on the next day.

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