

Carbon screen-printed electrodes for rapid analysis of fruit juices: antioxidant capacity and electronic voltammetric tongues

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Topic: Old Elements, New Technologies: how to improve the quality of life

Abstract:

Voltammetric studies of different fruit juices, orange, pineapple, peach, cranberry, pomegranate, passion fruit and tomato using square wave voltammetry have been carried out. The voltammograms obtained were different between them, which serves as a basis for juice fingerprinting. Several peaks were obtained in the voltammograms that corresponded to the oxidation of the ascorbic acid and other natural antioxidants present in the samples.

The area under the voltammogram is used as index of the antioxidant capacity of the corresponding juice. This index can be expressed as the equivalent concentration of ascorbic acid by using standard additions of ascorbic acid to the sample. A study of the stability of the index for orange juices was conducted over a period of ten days under different storage conditions.

A pattern recognition study of the voltammograms by Principal Component Analysis allows us to differentiate all the juices with only two components.