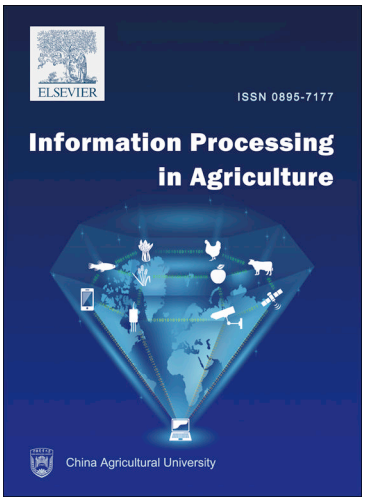

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Multielement determination in orange juice by ICP-MS associated with data mining for the classification of organic samples

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Abstract

The aim of this study was to discriminate organic from conventional orange juice based on chemical elements and data mining applications. A comprehensive sampling of organic and conventional oranges was carried out in Borborema, state of São Paulo, Brazil. The fruits of the variety Valencia (*Citrus sinensis (L.) Osbeck*) budded on Rangpur lime (Citrus limonia Osbeck) were analyzed. Eleven chemical elements were determined in 57 orange samples grown in organic and conventional systems. In order to classify these samples, data mining techniques (Support Vector Machine (SVM) and Multilayer Perceptron (MLP)) were combined with feature selection (F-score and chi-squared). SVM with chi-squared had a better performance compared with the other techniques because it reached 93.00% accuracy using only seven chemical components

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