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Assessment of fruit juice authenticity: A chemometric approach based on sugars and organic acids fingerprints

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Fruits and fruit juices represent an important part of the human diet because they show a significant economic value on the market, remain among the products subject to counterfeiting practices, inducing a negative impact on the consumer and food industry. Sugars and organic acids are important components of fruits chemical composition, providing powerful tools for authenticity of fruit products. They also have an effect on the sensory properties and nutritional value of fruit products. The present study was undertaken to determine the concentration of several sugars and organic acids in different fresh fruit juices by using HPLC-ELSD and HPLC-PDA methods in order to establish the variance range of these compounds for each type of fruit juices and to create a referential database. Linear discriminant analysis (LDA) models were constructed to classify juices according to the type of fruit, different sample locations and to distinguish between authentic, blended or adulterated juices. The developed methodology based on fingerprinting of sugars and organic acids in conjunction with a comprehensive database and chemometric methods reveals a high potential for certification of fruit juices authenticity.

Biography

Geana Elisabeta Irina has completed her PhD in 2015 at Bucharest University. Her main research interests are "Identification and quantification of essential active principles like phenolic compounds, organic acids, sugars, amino acids, terpenes, micro and macronutrients in different food matrices (wine, honey, fruits, plants, organic products and functional foods) by highlighting key biomarkers used in authentication, using the main instrumental analytical (HPLC, UV-VIS, ICP-MS)". She has published 16 ISI articles, 10 of them as first author.

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