

Current Topics in Analytical Chemistry → Volumes → Volume 13

## ABSTRACT

### **Classification and detection of honey adulteration through corona discharge-induced plasma spectroscopy and electronic plasma nose**

Leonardo Ferrara, Luis Puntoriero, Norberto Boggio, Juan Vorobioff, Jorge O. Cáceres, Ricardo De Simone, Carlos Rinaldi

Pages: 109 - 118

Number of pages: 10

**Current Topics in Analytical Chemistry**

**Volume 13**

Copyright © 2021 Research Trends. All rights reserved

## ABSTRACT

In the past, a large group of syrups and markers of honey adulteration have been identified, but new syrups are now closely matching their composition, and detection of honey adulteration is becoming considerably more difficult. In this work, we present a methodology that allows us to characterize honey samples providing a solution to this problem using corona discharge-induced plasma spectroscopy (CDIPS) in conjunction with electronic plasma nose (eP-Nose). Applying chemometric analysis it was possible to distinguish the different types of honey and determine the degree of adulteration in them with corn syrup. To our knowledge, this is the first time that this technique has been applied to determine the fingerprint (authenticity) of honey samples of different origins. The elemental composition of honey provides enough information to get correct discrimination of different adulteration. The result of the chemometric analysis showed over 98% certainty and all honey samples were correctly identified. There have been no instances of false positives or false negatives in our tests or applications. This methodology shows high potential as an alternative method for monitoring and analyzing the quality and purity in honey production, especially for fraud detection.