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Controlling Protected Designation of Origin of wine by Raman Spectroscopy

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Abstract

In this paper, a Fourier Transform Raman spectroscopy method, to authenticate the provenience of wine, for food traceability applications was developed. In particular, due to the specific chemical fingerprint of the Raman spectrum, it was possible to discriminate different wines produced in the Piedmont area (North West Italy) in accordance with i) grape varieties, ii) production area and iii) ageing time. In order to create a consistent training set, more than 300 samples from tens of different producers were analyzed, and a chemometric treatment of raw spectra was applied. A discriminant analysis method was employed in the classification procedures, providing a classification capability (percentage of correct answers) of 90 % for validation of grape analysis and geographical area provenance, and a classification capability of 84 % for ageing time classification. The present

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