

A Tentative Authentication of Parma Dry-Cured Ham Using Stable Isotope Ratio Analyses, Volatile Compounds and Fatty Acids Profile

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Food characterization represents an important strategic issue for food industry. An increasing number of consumers are concerned about the origin of food products as an indicator of quality. Nowadays many consumers demand high quality products with a clear regional identity. In 1992 EU legislation came into force providing a system for the protection of regional foods, through the “PGI” (Protected Geographic Indication) and “PDO” (Protected Designation of Origin) labels (European Union Regulation (EEU) 2081/92). The aims of this legislation were: to support diversity in agricultural production, to protect consumers by giving them information on the specific characteristic of the product and to protect product names against fraud and imitation. To achieve this goal, food authorities can rely on paper traceability, and/or physical and chemical analyses. Parma dry cured ham (PDCH) is a typical Italian product monitored under the Protected Designation of Origin (P.D.O., Commission regulation (EC) No 1107/96) . Its distinctive properties of aroma and taste are due to the long maturing process (12 months). The aim of the present study was to evaluate the usefulness of stable isotope ratio analyses by IRMS, volatile compounds by SPME/GC-MS and fatty acids profile for characterizing PDCH samples in order to distinguish them from other typologies of dry cured ham without designation of origin. SPME was applied for a first time to study the volatile compounds in PDCH. Isotope analysis showed a good discrimination among PDCH and other typologies based on $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ (related to feeding diets) and $\delta^{18}\text{O}$ and $\delta^2\text{H}$ (information about their geographical origin). Among volatile compounds, pentane, hexanal, 2-propanone, 2-butanone and 3-methyl-1-butanol were able to distinguish Parma dry cured ham samples from the rest.

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