

# The Potential of Specific Aldehyde Ratios as Indicators of Lamb Meat Quality During Storage Under Refrigeration

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The aim of the present study was to evaluate the volatile profile of raw lamb meat and to investigate whether specific aldehyde ratios could indicate lamb meat's freshness and quality during storage under refrigeration. Volatile compounds were determined using headspace solid phase microextraction coupled to gas chromatography/mass spectrometry (HS-SPME/GC-MS). Results showed that the most dominant volatiles were: 2,2,4,6,6-pentamethyl-heptane, hexanal, 1-octen-3-ol, 1-hexanol, carbon disulfide and para-cymene. Volatile compounds' semi-quantitative data was increased during storage time. However, statistically significant differences were recorded only for hexanal, heptanal, and nonanal ( $P < 0.05$ ). Additionally, the evolution of aldehydes during storage, recorded positive Pearson's correlation ( $r$ ) ( $P < 0.05$ ), whereas hexanal to nonanal, heptanal to nonanal, octanal to nonanal ratios, along with the sum of aldehydes to nonanal ratio, were positively correlated ( $r = 0.83-1.00$ ) with the degree of oxidation (mg malonic dialdehyde per kg of lamb meat). A Perfect Pearson's correlation ( $r = 1$ ) was obtained for the ratio hexanal to nonanal. Therefore, this ratio is proposed as an indicator of lamb meat degree of oxidation reflecting its freshness and good quality.

**Keywords:** Lamb meat; Volatile compounds; Aldehydes; Aldehyde ratios; Freshness; Quality control

## Biography

Ioannis K. Karabagias is a Chemistry graduate (Ptychion) (2004) of the University of Ioannina, Greece. He earned his MSc. in Food Science and Technology from Ioannina University, Chemistry Department, Section of Industrial and Food Chemistry, in 2008. The period 2010-2014 he was a PhD candidate at the University of Ioannina and earned his PhD in Food Chemistry October 2014. He has published 55 articles in International peer-reviewed Journals. He is a reviewer of more than 40 International scientific journals. His research interests include: Food Chemistry, Non Thermal Methods of Food Preservation, Food Analysis, Nutritional Aspects of Foods, etc.

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