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Lamb meat lipid oxidation and iron changes during different home-cooking methods

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The main objective of this study was to evaluate the influence of three cooking methods on lipid oxidation and heme iron to non-heme iron changes in raw and cooked meat treated by commercial cooking methods in Iran. Present study was carried out in three experimental steps. Preparation of meat samples and determination of proximate composition of raw and cooked meat were conducted as the first step. Secondly, lipid oxidation was determined using three oxidation indices, including peroxide value, conjugated dienes and thiobarbituric reactive species (TBARS). Also, effect of cooking on heme and non-heme iron content was studied. Finally, the statistical relationships between lipid oxidation indexes against total iron, heme and non-heme iron changes were investigated. Peroxide value decreased in all cooked samples. Conjugated dienes as another oxidation index increased significantly in fried and grilled samples, but not in stewed lamb meat. In contrast, stewed samples showed significant more TBARS content about 88.94% than raw meat ($p < 0.05$). Total iron was reduced by 20.63%, 15.95% and 4.85% after stewing, frying and grilling, respectively. Assessment of correlation between either heme or non heme iron and the investigated oxidative indexes revealed direct relationships between heme iron and conjugated dienes. Similar result was obtained for non heme iron and TBARS. Lamb meat lipid oxidation and non heme iron appeared in stewing followed by frying and grilling. Long cooking time and high water pressure in stewing could be the main reasons for accumulation of the most stable products of fat oxidation in stewed lamb meat.

Biography

Maryam Mirlohi has completed her PhD from Isfahan University of Technology. She has been working as an academic in Isfahan University of Medical Sciences. She has published more than 40 papers in the international journals and has been serving as the Head of Food Sciences and Technology department at the School of Nutrition and Food Sciences in the Isfahan University of Medical Sciences.

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