Changes in the Volatile Profile of Pork Loin Chops Fried in Different Cooking Fats under Storage

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The effect of the type of culinary fat (olive oil-OO-, sunflower oil-SO-, butter-BT- and lard-LD-) on the volatile profile of fried pork loin chops (m. *Longissimus dorsi*) under refrigerated storage was evaluated by the technique of solid phase micro-extraction (SPME) and gas chromatography and mass spectrometry (GC-MS). Volatile profile of fried pork was affected by the fatty acid composition of the meat, and this was similar to the frying fat. Volatiles isolated from fried chops came from oxidation reactions of lipids and Maillard reactions. Fried chops with more unsaturated fatty acids showed more content of lipid derived compounds. After frying, SO chops showed the largest content of lipid-derived compounds, mainly aldehydes, followed by OO chops, while BT and LD chops showed the lowest contents. Storage increased most lipid-derived compounds (acids, aldehydes, ketones, alcohols and alkyl furans). However, this increase was larger in BT chops and LD chops than in SO chops and OO chops, although these two last ones had higher amount of unsaturated fatty acids. The action of natural antioxidants in vegetable oils and heat-induced antioxidant derived from Maillard reaction could have contributed to the reduction of lipid oxidation reactions during storage of meat fried in these oils. Therefore, frying in vegetable oils, especially in olive oil, increases shelf-life of cooked meat under refrigerated storage.

Key words: culinary fat, deep-frying, meat, volatile compounds, storage.