

The 13th European Nutrition Conference, FENS 2019, was held at the Dublin Convention Centre, 15–18 October 2019

Quality changes in oil marinades used for flavoring of meat

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Abstract

Meat semi-finished products that are portioned or not, meat with the addition of a different composition of spices and oil are a common element of the commercial offer in the convenient ready to cook food segment. During the refrigeration storage in this complex system of meat, oil and spices, there is a number of physicochemical changes, including hydrolytic and oxidative changes of the oil⁽¹⁾. The products of these reactions become integral components of the meat subjected to heat treatment. As a result of heating, secondary oxidation products of lipids may be formed which constitute a serious health risk⁽²⁾. The study was aimed at determination of the effect of spices containing antioxidants and sulfur-organic compounds on hydrolytic and oxidative changes in the oil that formed the base of the marinade in which meat was kept. Pork neck was minced and formed into burgers (250 g), rapeseed oil (120 g) and spices (5 g) were used. Four research groups were analyzed meat / oil / spices system with rosemary, oregano, garlic or onion. Oil samples were collected on the third, fifth and eighth day of refrigerated storage. The control sample was the oil from the meat / oil system only. The quality of the oil was evaluated on the basis of the acid value, peroxide value and TBARS index. In the oil with onion, garlic, rosemary and oregano the hydrolytic changes on the 8th day of storage were significantly lower compared to the control. On the basis of the average peroxide value in oil marinades with the addition of rosemary and oregano, significantly lower values of this indicator were found when using rosemary (3.61 meq O₂/kg) in comparison with oregano (6.01 meq O₂/kg). The average of TBARS index in marinade with onions and garlic was lower by 31% and 48%, respectively. Also the use of rosemary and oregano was effective in blocking the formation of secondary oxidation products (rosemary even three times higher than that of oregano).

Acknowledgements

Project financially supported by Minister of Science and Higher Education in the range of the program entitled “Regional Initiative of Excellence” for the years 2019–2022, Project No. 010/RID/2018/19, amount of funding 12.000.000 PLN.

Conflict of Interest

There is no conflict of interest.

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