

3rd International Conference and Exhibition on **FOOD Processing & Technology** July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

Effect of antioxidants on lipid oxidation and changes in nutritive value of protein in frozen-stored meat products

Marzanna Hes, Anna Gramza Michałowska, Danuta Gorecka and Krzysztof Dziedzic Poznan University of Life Sciences, Poland

The processes of fat oxidation are the cause of adverse sensory changes in meat and meat products. Moreover, primary and secondary products of fat autoxidation may react with other food components lowering their nutritional value. This particularly concerns proteins, which belong to valuable components in our diet and should be especially protected in all processes related to technological processing. Among strategies that help to reduce lipid oxidation and its negative nutritional consequences, the antioxidant addition into meat product formulation is becoming more and more often applied. Natural antioxidants are in focus and new sources of such compounds are searched for. The aim of this study was to determine the effect of antioxidants (extracts from thyme, tea, rosemary and BHT) on lipid oxidation, the availability of lysine and methionine and protein digestibility in frozen pork meatballs.

The extent of lipid oxidation was determined periodically based on measurements of TBARS (2-thiobarbituric acid reactive substances) content by the distillation method. The effect of lipid oxidation on proteins was characterized by changes in available lysine and methionine as well as protein digestibility *in vitro*.

The addition of antioxidants slowed down lipid oxidation to a significant extent. The highest activity was found for BHT and tea extracts. In control samples without antioxidants, the content of available lysine and methionine was reduced by 30% and 23% respectively, whereas protein digestibility - by 17% at the end of storage. The addition of antioxidants significantly inhibited the decrease in protein digestibility of meat products and limited quantitative losses of lysine and methionine.

Biography

Marzanna Hes completed her PhD at the age of 36 at Poznan University of Life Sciences, Poland. She is an Assistant Professor in the Department of Food Service and Catering at Poznan University of Life Sciences. She has published more than 61 scientific papers and 87 conference posters and oral presentations. She is a reviewer for several international journals. Her professional interest is focused on new sources of natural antioxidants, applied in food for their stability enhancing properties and the highest possible nutritional value.

marzahes@up.poznan.pl