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Effect on color, biochemical and sensory characteristics of Turkish fermented sausages (Sucuk) of dipping into chitosan solutions enriched with essential oils as a surface fungus inhibitor

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Chitosan is a versatile natural biopolymer having an antimicrobial and an antioxidant activity. These effects of chitosan can be promoted by adding essential oils such as thyme and rosemary essential oils. The aim of the study was to evaluate the effect of coating of chitosan-essential oil based on CIE model L* lightness, a* and b* color values, titratable acidity, pH value, lipid oxidation and sensory properties of Turkish fermented sausages during 12 days of processing. The sausages after fermentation period were dipped into different solutions for 1 min as follows: (1) distilled water (control), (2) 1% acetic acid (AA), (3) 20% potassium sorbate (PS), (4) 1% chitosan (C), (5) C-thyme essential oil (1%, CT), and (6) C-rosemary essential oil (1%, CR) treated sausages. After these treatments, the sausages were continued to ripen. L* and a* values increased during fermentation while they decreased during ripening. Treatment with CT and CR significantly affected on L* and a* values. Lower L* and b* and higher a* values of CT and CR treated sausages indicated to retard pigment oxidation during ripening. PS, which the solution had the highest pH value (10.02), treated sausages had the highest pH and the lowest titratable acidity after dipping treatment at day four. Treatment of chitosan-essential oil of the sausages significantly reduced lipid oxidation as measured by TBARS values compared to control, AA and PS sausages. At the end of ripening, CT and CR treated sausages had higher color, taste and overall acceptability scores. As a result, treatment with both chitosan-thyme and chitosan-rosemary essential oils of the sausages after fermentation did not negatively affect sensory and color parameters and improved the sausage quality properties.

Biography

Eda Demirok Soncu graduated from Ankara University, Faculty of Engineering, Department of Food Engineering in 2007. In the same year, she applied for PhD candidate. During PhD, she worked as a visiting student at Texas A&M University, Poultry Science Department between 2011 and 2012. In 2014, she graduated from Ankara University, Department of Food Engineering and got PhD degree. The subject of her thesis was investigation of acrylamide in further processed chicken products during frying. She has been still working at the same department as a Dr. Research Assistant. From 2007 to date, she has participated in 9 projects. She has 9 international and 4 national scientific papers. Additionally, she has presented many presentations in 20 international and national scientific meetings. Her academic research area is meat science and technology, poultry science, food safety, food quality and nutrition.

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