

Healthy Plant Oils as Fat Replacers in Low Fat Chicken Sausages

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In commercial sausage production, animal fat is directly added as a fat source and it may cause ill-health effects. The present study was focused to develop healthy chicken sausages by replacing animal fat (chicken skin) with sunflower oil, soybean oil, coconut oil and olive oil and to evaluate their nutritional and sensory properties. Sausages were prepared separately incorporating chicken skin (control) and above mentioned oils according to the commercial guidelines. A sensory evaluation was conducted using 30 untrained panelists with 7-point hedonic scale. Based on sensory analysis results, the three best treatments were vacuum packed and compared weekly with the control for pH, colour, water holding capacity (WHC), cooking loss, proximate composition TBARS value and microbial quality for one month under frozen (-18°C) condition. According to results, coconut oil, sunflower oil and soybean oil incorporated sausages showed better sensory properties than control and olive oil incorporated sausages ($p < 0.05$). In addition, plant oils added sausages had lower fat content and higher ash content compared to control samples ($p < 0.05$). Soybean oil added sausages had the lowest fat ($4.69 \pm 0.27\%$) and the highest ash ($2.31 \pm 0.04\%$) content. However, the protein and moisture content were comparable among the treatments ($p > 0.05$). At the initial stage of storage, sunflower and soybean oil added sausages showed lower pH values ($p < 0.05$). The lowest cooking loss values were shown in control and sunflower oil added samples ($p < 0.05$). WHC values were comparable among treatments. In all treatments, pH and WHC values were decreased while cooking loss values were increased with storage. TBARS and total plate count values were increased with the time, but within the permitted levels. *Salmonella* and *Escherichia coli* were not present in all samples. Therefore, healthy plant oils can be used to replace chicken skin in manufacturing of low fat sausages.

Keywords: Chicken skin, Sunflower oil, Soybean oil, Coconut oil, TBARS