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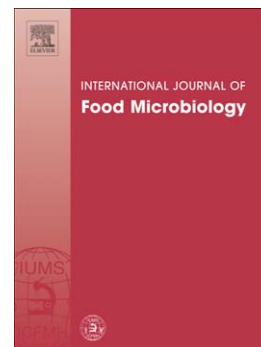
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Antimicrobial and antioxidant effects of spice extracts on the shelf life extension of raw chicken meat

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Short title: Shelf life extension of raw chicken meat.

Abstract

The antimicrobial and antioxidant effects of different spice extracts in raw chicken meat during storage for 15 days at 4 °C were studied. Raw chicken meat was treated with BHT (positive control), *Syzygium aromaticum*(SA), *Cinnmomum cassia*(CC), *Origanum vulgare* (OV), *Brassica nigra* (BN) extracts and the different combinations as well as the results were compared to raw chicken meat without any additive (negative control). The antioxidant and antimicrobial activities of spice extracts were determined. Total phenolic contents and flavonoid contents were ranged from 14.09±0.78 to 24.65±0.83 mg of GAE/g and 7.07±0.15 to 12.13±0.24 mg of quercetin/g, respectively. The pH, instrumental color (CIE L*, a*, b*), total viable counts (TVC), Lactic Acid Bacteria (LAB) counts, *Enterobacteriaceae* counts, *Pseudomonas* spp. counts and 2-thiobarbituric acid reactive substances (TBARS) were determined at a gap of 3 days interval for a period of 15 days . The bacterial counts of T-W-SA+T-W-CC+T-W-OV samples were lower than control samples during storage. T-W-SA+T-W-CC+T-W-OV samples maintained significantly (P<0.05) higher L*, a* and b* values while storing. The TBARS values of T-W-SA+T-W-CC+T-W-OV samples were lowest among the samples. These results show that spice extracts are very effective against microbial growth, lipid oxidation and has potential as a natural antioxidant in raw chicken meats.

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