ABSTRACT

The antimicrobial and antioxidant effects of different spice extracts in [raw chicken meat](https://www.sciencedirect.com/topics/food-science/raw-chicken-meat) during storage for 15 days at 4 °C were studied. Raw chicken meat was treated with BHT (positive control), [Syzygium](https://www.sciencedirect.com/topics/immunology-and-microbiology/syzygium" \o "Learn more about Syzygium from ScienceDirect's AI-generated Topic Pages) aromaticum (SA), Cinnmomum cassia (CC), *[Origanum](https://www.sciencedirect.com/topics/immunology-and-microbiology/origanum" \o "Learn more about Origanum from ScienceDirect's AI-generated Topic Pages)* vulgare (OV), and [*Brassica*](https://www.sciencedirect.com/topics/immunology-and-microbiology/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](https://www.sciencedirect.com/topics/food-science/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](https://www.sciencedirect.com/topics/immunology-and-microbiology/total-viable-count) (TVC), [Lactic Acid Bacteria](https://www.sciencedirect.com/topics/immunology-and-microbiology/lactic-acid-bacterium) (LAB) counts, *[Enterobacteriaceae](https://www.sciencedirect.com/topics/immunology-and-microbiology/enterobacteriaceae" \o "Learn more about Enterobacteriaceae from ScienceDirect's AI-generated Topic Pages)* counts, [*Pseudomonas*](https://www.sciencedirect.com/topics/immunology-and-microbiology/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](https://www.sciencedirect.com/topics/immunology-and-microbiology/bacterial-count) 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](https://www.sciencedirect.com/topics/immunology-and-microbiology/microbial-growth), [lipid oxidation](https://www.sciencedirect.com/topics/immunology-and-microbiology/lipid-oxidation) and has potential as a natural antioxidant in raw chicken meats.