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Effect of bee honey as antimicrobial and antioxidant agents on the quality characteristics of chicken fillets

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Objective: This study was conducted to evaluate the antioxidant and antimicrobial effect of bee honey (citrus origin) on the quality characteristics of chicken fillet in refrigerator at 4°C and sensory evaluation after grilled.

Methodology: The antioxidant and antimicrobial activities were evaluated in different concentrations of honey (2.5, 5 and 7.5%). Chemical, Physical and sensory characteristic of chicken fillets was determined. Methods of determination include physical: colour, pH measurement, total soluble solids (TSS) for honey, cooking yield, water and holding capacity; chemical: proximate chemical composition and antioxidant properties (TBA Value); microbiological: total count of aerobic mesophilic bacteria, *Salmonella*, *E. coli* and coliform bacteria; sensory: (juiciness, tenderness, odour, sweetness, sweetness acceptability, overall acceptability, texture and flavour acceptability) of chicken fillets were evaluated by Food processing technology program staff and students.

Results: Results showed that the control sample of chicken fillet has the highest content of moisture, protein and ash compared to samples treated by honey. In addition, it noticed with increasing honey concentrations, moisture, protein and ash decreased while the carbohydrates increased. Sample with 7.5%

honey had the highest content of carbohydrate; lowest value of acidity; increased water holding capacity (WHC); increased cooking yield; decreased cooking loss; decreases the formation of TBA (Thiobarbaturic acid value); decreases the total viable count during and after storage period compared with all samples. There is no specific trend in pH values exists with time; however the control sample showed instability of pH during storage. Control sample appeared paler in colour compared to the honey treated samples that appears to be yellowish in colour with increasing concentration of honey. All chicken fillets treated by honey did not contain *E. coli*, *Salmonella* and *Staphylococcus aureus* but contain coliform group, which may get from cross contamination in the local market. The Increase in honey concentration decreases the coliform count; sample treated by 7.5% honey had the lowest coliform count during refrigerated storage. The 7.5% honey treated sample had the most acceptable sensory characteristics compared to all samples.

Conclusion: The microbial load, oxidation and sensory evaluation were affected by bee honey. 7.5% honey treated samples showed the best results through all chemical, physical, microbiological and sensory tests.

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