EFFECT OF NUTRITIONAL, MICROBIAL, ANTIOXIDANT ACTIVITY AND SENSORY QUALITIES OF CHICKEN MEAT SAUSAGES USING MORINGA, TEA AND CINNAMON LEAF POWDER

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ABSTRACT

Dried leaf powder consist of valuable natural antioxidants as the bio active compounds. Therefore sausage can be enriched by incorporation with dried leaf powder. The aim of present study was to evaluate the nutritional, physical properties, antioxidant and microbiology of sausages incorporated with dried leaf powder namely, dried *Moringa oleifera* leaf powder, dried *Camelia sinensis* leaf powder and *Cinnomomum zeylanicum* leaf powder at the rate of concentration 0.5%. Sausage samples were analyzed for physico-chemical and sensory properties during refrigerated stored at -10 ^{0}C.The physico-chemical and sensory characteristics were analyzed at day one , week one, week two , week three, week four of storage period.

Moisture content, dry matter, ash, pH, texture profile colour, antioxidant activity and microbial activity were significantly difference ($p<0.05$) among the treatments. Dry matter and ash content were significantly ($p<0.05$) higher in sausage incorporated with *Moringa oleifera* leaf powder 36.75±0.04%, 3.39±0.07%, respectively. Fat content of sausage sample was significantly ($p<0.05$) higher (12.97±0.15%) in *Cinnomomum zeylanicum* incorporated sausage sample. pH was significantly ($p<0.05$) higher (6.77±0.02) in without leaf powder added sausage sample. Also *Cinnomomum zeylanicum* leaf powder incorporated sausage sample had significantly higher hardness (3.77±0.25N) compared to the without leaf powder added sausage sample.

Cinnomomum zeylanicum showed the significantly ($p<0.05$) highest antioxidant activity (1867.92±2.23mM/g) compared to other treatments. Total bacterial count was lower (5.6×10^{4}CFU) in *Cinnomomum zeylanicum* leaf powder incorporated sausages.

Staphylococcus aureus presented lower (3×10^3 CFU) in *Moringa oleifera* leaf powder incorporated sausages. *E.coli* and *Salmonella* were negatively presented in the all the treatments.

During storage, the ash and dry matter content were significantly ($p<0.05$) increased and fat content was significantly ($p<0.05$) decreased. pH content was significantly ($p<0.05$) decreased and antioxidant activity also decreased. Organoleptic properties were evaluated through the panel of 30 members. As a results of organoleptic characteristics revealed that, 0.5% *Cinnomomum zeylanicum* leaf powder added sausage had highest consumer preference of taste and aroma. *Moringa oleifera* leaf powder incorporated sausages had highest mean score of texture and without leaf powder added sausage sample had highest preference for colour. However, higher overall acceptability of sensory panel was *Cinnomomum zeylanicum* leaf powder incorporated sausages. Finally, it could be concluded that the *Cinnomomum zeylanicum* leaf powder incorporated chicken sausage most important in enhancing the quality of the chicken meat sausages.

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