



Assessment of physico-chemical, microbiological and organoleptic quality of grilled chicken meat in southern Benin

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ABSTRACT

Objectives: The consumption of grilled chicken meat on the street is becoming rampant in the daily life of urban populations. This study focuses on assessing the physicochemical, organoleptic, and microbiological quality of grilled chicken meat in Benin.

Methodology and results: Grilled chicken meat (indigenous, broiler, and reformed layer) were obtained from different cooking processes using wood, charcoal, gas devices and related spices used for grilling and consumption. Collected samples were analysed for the physicochemical, organoleptic and microbiological levels. Analyses were carried out following standard methods. Data were analysed using one-way ANOVA of Graph Pad Prism 5. Results showed that the pH of grilled chicken meat ranged from 5.74 to 6.05; moisture was between 49.17% and 59.17%. Lipid content varied from 5.5% to 13.76%, and that of the proteins from 27.08% to 36.15%. Phosphorus was most abundant in grilled chicken meats (4.39-6.7 g/kg meat), followed by calcium (0.21-5.64 g/kg). Magnesium and iron were in low proportions with 0.090-0.407 g/kg and 0.02-0.058 g/kg of meat, respectively. From an organoleptic point of view, the indigenous grilled chicken (PLG) meat was the least appreciated, while the gas-grilled chicken meat (PGG) was the most appreciated for its tenderness and juiciness. Load in total aerobic germs and thermotolerant coliforms of all grilled chicken meats exceeded 3×10^6 and 10^2 CFU/g thresholds respectively except for gas-grilled chicken meat whereas the loads in total coliforms, *E. coli*, sulphite-reducing anaerobes, yeasts and moulds respected the standards. *Staphylococcus aureus* and *Salmonella* were not detected in any of the grilled chicken meats and spice samples analysed.

Conclusion and application of findings: It can be deduced that gas-grilled chicken meats have the best organoleptic qualities and would expose consumers to less microbial loads than other charcoal and wood-grilled chicken meats. Stakeholders are encouraged to improve the hygienic conditions

(material and handling) of grilled chicken meat production and to protect them during selling in order to offer a better microbiological quality product.

Keywords: Grilled chicken meat, grilling equipment, sensory characteristics, microbial load, Benin