

MICROBIOLOGICAL EVALUATION OF FROZEN AND SMOKED FISH

(*clupeaharengus*) SOLD IN MINNA METROPOLIS, NIGER STATE

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ABSTRACT

The study assessed the microbiological qualities of smoked and frozen fishes sold in Minna Metropolis, Fish and fisheries products are the most important nutritious food all over the world which represents about 15-20% of all animal protein on a global basis. Fishes are a rich source of protein commonly consumed as an alternative source of protein due to the higher cost of meat and other sources of animal protein. Four (4) samples of frozen and smoked fish were purchased from different markets within Minna metropolis and analyzed. Yeast and Bacteria were counted and identified using serial dilution method on the collected samples and dilution factor of 10^3 cfu/ml was used for each sample. The result showed that microbial counts of frozen fish samples were comparably higher than those of smoked fish samples. For the smoked fish, the count ranged from 7×10^3 to 14×10^3 for bacterial count and 1×10^3 to 38×10^3 cfu/g for fungal count, while for the frozen fish, it ranged from 15×10^3 to 100×10^3 for bacterial count and 7×10^3 to 60×10^3 cfu/g for fungal count. Specific bacteria isolated with their percentage of occurrence were *Bacillus subtilis*(16.66%), *Staphylococcus aureus*(11.10%), *Escherichia coli*(11.10%), *Streptococcus spp*(27.77%), *Klebsiella spp*(5.55%), *Staphylococcus epidermidis*(16.66%) and *Bacillus cereus*(11.10%), The fungal isolates were *Penicillium spp*(7.69%), *Saccharomyces cerevisiae*(30.76%), *Aspergillus niger*(23.07%), *Aspergillus flavus* (7.69%) , *Aspergillus fumigatus* (7.69%)and *Trichrophyton spp*(23.07%), This means that isolated bacterial above was observed to cause food poisoning and food infection in human. It was observed that the shelf life, method of preservation and handling processed could affect the microbial load and diversity. Therefore, adoption of a good processing practice, the use of controlled temperature in processing and proper storage of both smoked and frozen fish are highly recommended.

Keys: Frozen and smoked fish, Bacteria count, Fungi count, Preservation and Spoilage