Application of HACCP System in Controlling Hazards of Some Fish Products

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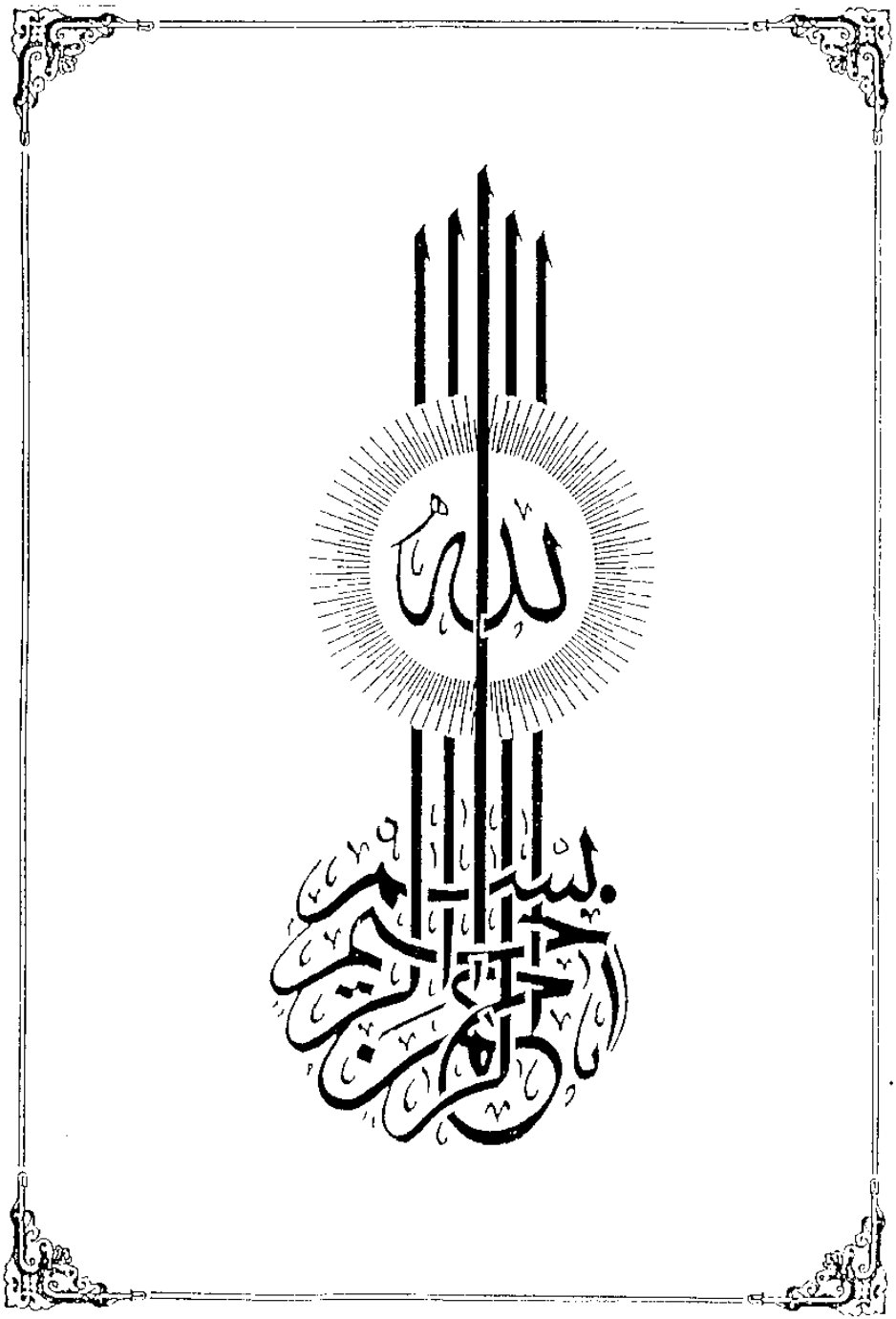

APPROVAL SHEET

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ABSTRACT

Sayed Mekawy Ibrahim . Application of HACCP System in Controlling Hazards of Some Fish Products.Unpublished Doctor of philosphy, University of Ain Shams, Faculty of Agriculture, Department of Food Science , 1999 .

The main goal of this work was to investigate the possibility of successful application of Hazard Analysis Critical Control Points to control the safety and quality inside the processing steps of smoked herring and canned sardine . The objective was to establish Egyptian guide lines coming from within the industry of ready to eat herring products and canned sardine . This investigation was carried out in Canal Company, Ismalia . Chemical , miocrbial and ISO standard methods for the inspection of smoking and canning steps were applied . Biogenic amines, lead, cadmiun and mercury, phenolic compounds and sensory evaluation were also determined.

Four CCPs identified salting (CCP_2) , curing (CCP_2) , smoking (CCP_1) and storage (CCP_2) in herring manufacture line . Salmonella, Psychrophilic and Enterobacteriaceae were destroyed by the process operations.Processing caused reduced in the Staphylococcus aureus and Vibrio parahaemolyticus counts. Shelf life of smoked herring remained without deteriorated for 15 day at room temperature and 75 day under refrigeration . Smoking caused reduction in TVB - N , TBA and it caused increased in the phenolic compounds absorbed into flesh of herring . Deheaded , eviscerated herring, salted cured before smoking was the best recorded high scores in organoleptic evaluation .

In canned sardine only two CCPs identified commercial sterilization (CCP_1) and filling (CCP_2) . Canning caused increasing in TVB-N of sardine, and decreasing in TMA-N .Results indicated

that sunflower oil was suitable filling in canned sardine.Completly destroyed of Salmonella and Enterobacteriaceae bacteria was found in all canned sardine groups . Also, canning reduced the sporeformers remained after commercial sterilizataion.Spices and edible salt represented the main source of sporeformers after storage, canned sardine with sauce was the best. Lead was found in raw and canned sardine group.Also,mercury but cadmium was not detected either in raw or in canned sardine . Generally, the obtained results indicates on the successful application of HACCP under the Egyptian conditions .

Key Words : HACCP System, Smoked herring, Canned sardin, Frozen imported fish, Smoking process, Salting, Curing with K-sorbate solution, Packaging, Storage, Canning process, Biogenic Amines, Phenolic compounds,Toxic heavy metals, Pathogenic bacteria.

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