

THE HYGIENISATION EFFICIENCY CONTROL IN A FISH PROCESSING FACTORY FROM TIMIȘOARA

Mărioara Drugă, Corina-Dana Mișcă, M. Drugă,

Nicoleta-Gabriela Hădărușă, Camelia Clep, Mihaela Man

Banat's University of Agricultural Sciences and Veterinary Medicine, Faculty of Food Processing Technology

Abstract

To check hygienisation efficiency, according to legal acts it was sampled: sanitation samples from walls, floors, work desks, work board, knives, transport containers, spawn containers, protection equipment and workers hands. Samples proceeding were made in microbiological laboratory. It was determined units colonies forming (UFC) and coliforms using the methods describes in STAS 12922/4-91 and 12922/2-91. It was observed microbial contamination of some examination surfaces/tools before and after hygienisation operation, probably due by lack of some utilities and bad management in hygienisation operations.

Keywords: *fish, hygienisation efficiency*

Introduction

The fish and fishery products represent one of most important sources of proteins for humans. Because fish is a food with a high degree of perishables, the processing, the preservation, the storing, the transportation and the sale must be done in rigorous hygienically conditions – to prevent the contamination with microorganisms, the degradation and the adulteration it. Fresh fish is free of germs or it has a very small charge of germs. The main contamination sources are representing by digestive tube and the objects that come in contact with fish (Drugă, 2002).

The goal of the study was to establish the hygienisation efficiency by microbiological examination in a fish-processing factory for from Timișoara.

Experimental

For hygienisation, the factory use P3-topax 66, a cleaner and disinfection liquid, by foam operation, with chlorine, for food and alcoholic beverage industry. P3-topax 66 has eliminating properties for fat and proteic residues, organic compounds of bear stone and microorganisms; it has antifungal effects and bleaching effects of blood and fruit spots on surfaces. It can be applied both on metallic, plastic and ceramics surfaces.

First it must be done a water pre wash to eliminate dirt, and then follows the surfaces foaming with P3-topax 66 sol. 2-3% (contact time 10-20 minutes) and the final – foam and residues rinse by warm water (40-60°C).

To check the hygienisation efficiency, in February-March 2005 were three times sampled sanitation samples from: walls, floor, work desk, workers protection equipment, knives, transportation containers, spawn containers and workers hands.

The samples were prelevated before and after hygienisation from 100 cm² surfaces by sterile buffer three times for same surface; the samples buffer were immersed in 9 cm³ peptonate physiological solution.

Samples proceeding were made in microbiological laboratory. It was determined units colonies forming (UFC) and coliforms by STAS 12922/4-91 and 12922/2-91 methods.

Results and discussions

Microbial charge of examined objectives, before and after hygienisation operations is presented in table 1 (the values represents arithmetic average of the three determinations).

It can be observed that, before hygenisation, the values referring to microbial contamination expressed by UFC were between 20 UFC/cm² in the spawn containers and 285 ·10⁴ UFC/cm² in floor.

Table 1. Germs number from the examination surfaces – before and after hygienisation

| Specification | Microbial charge before hygienisation | | Microbial charge after hygienisation | | Normal values | |
|---------------------------|---------------------------------------|----------------------------------|--------------------------------------|---------------------------------|----------------------|---------------------------------|
| | UFC/cm ² | Coliforms/ 10 cm ² | UFC /cm ² | Coliforms /10cm ² | UFC /cm ² | Coliforms /10cm ² |
| Work desk | 178 · 10 ⁴ | 102 | 70 | 0 | 2 | absent |
| Work board | 101 · 10 ⁴ | 15 | 95 · 10 ³ | 0 | 2 | absent |
| Knives | 300 | 9 | 44 | 0.3 | 2 | absent |
| Transportation containers | 93 · 10 ⁴ | 110 | 150 | 0 | 2 | absent |
| Spawn containers | 20 | <0.3 | 0 | 0 | 2 | absent |
| Walls | 89 | 3 | 12 | 0 | 2 | absent |
| Floor | 285 · 10 ⁴ | 3 | 50 | 2 | - | absent |
| Protection equipment | 2300 | <0.3 | 0 | 0 | 2 | absent |
| Worker hands | 1400 | 0.3 | 4 | 0 | - | absent |

Coliforms – before hygienisation, were present in all examined objectives and were between 0.3 UFC/10 cm² and 110 UFC/10 cm².

After hygienisation, excepting spawns containers and protection equipment, in others studied objectives UFC were between 4 and 95 ·10³ UFC/cm². The higher value was on work board and the lower was on workers hands. Coliforms were present after hygienisation on floor and on knives (0.3 UFC/10 cm²). According to legislations, presence of coliforms is not admitted.

Microorganisms' presence on knives after hygienisation is due to the absence of knives disinfectant and permanent warm water source at 83°C.

The lower microbial charge of floor surfaces is probably due by continuously water washing of residues obtained during fish processing.

After the observations made in this unit, we can conclude that, the presence of microbial contamination is due to the bad management concerning hygienisation operations (low concentration of used substances and short contact time).

Conclusions

The presence of microbial contamination after hygienisation on some studied objectives is due to the lack of some utilities (knives disinfectant, permanent warm water source at to 83°C) and the bad management concerning hygienisation operations.

References

Drugă, M., Drugă, Mărioara. (2002). *Igiena întreprinderilor din industria alimentară și protecția mediului*. Ed Mirton, Timișoara

*** - STAS 12922/4-91.

*** - STAS 12922/2-91.