TITLE: ISOLATION MICROBIAL LOAD FOR STAPHYLOCOCCUS MICROORGANISMS IN THE AIR SECTORS OF KORCA POULTRY

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ABSTRACT

Microflora air has a great importance on the safety of food products. Microflora of the air can be a source of infection for live chickens to meat which can cause decay. Being protein food makes poultry products more attractive to the action of microorganisms, as a result, against potential microbial contamination, including pathogenic bacteria. The aim of the study: 1. Identification of Staphylococcus and other pathogens with modern analysis. 2. Reducing the level of resistance of pathogenic bacteria of their distribution in the air of poultry plants where chicken manipulated until the final product "ready for consumption". External sector and the sector of slaughter are called non-contaminated (clean), because the number of colonies is inside the permitted norm. Colonies prepared with preparations in calving poultry sector and in the other sectors in Korca poultry were identified tetracoccus, clusters of grapes (Staphylococcus) and Streptococcus

Word keys: *microflora air*, *pathogen microorganism*, *contaminated*, *protein food*

INTRODUCTION

Clean air is a major factor in human health, animals and birds. Scientists estimated that the air indoors can be more polluted than outdoor air. In the air are saprophytes, pathogens microorganisms and parasites. Microflora of the air has a great importance in food safety. This fact open important studies in all directions, for evaluating of air quality in different sectors a food plant where expected raw material, manipulate, processed, packing sectors, labeled, thrown on the market. Because of the relatively low cost, chicken is a bird of meat used more in the world. Almost all parts of the chicken can be used as food, and their meat can be cooked in various ways. [1]

Already poultry in Korça area, which consists our scientific study, throw in market poultry products in competition with products like sisters at home and abroad. During the preparation and storage of this product is important microflora of air that can be a source of infection for live chickens to chicken meat that can cause its decay. Microbiological analysis of air performed to determine the total amount of microorganisms in the air, as well as to determine the pathogenic

microorganisms causing infective diseases. In the air can be found the yeasts, pathogen bacters and molds. Being protein food makes poultry products very attractive to the action of microorganisms, and therefore to possible microbial contamination, including pathogenic bacteria. [2], [3]

Viewing the problem referring principles of HACCP worth win the experience of the basic principles of this system as follows:

- to be accomplished a risk analysis
- to become determinations where there is greater opportunity of pollution and take measures to prevent pollution
- identify the critical points are clearly defined steps to be taken during the processes which can be realized prevention of microbial contamination
- to define critical limits for each critical control point, for example the case of temperature, relative air humidity, air microflora plant sectors (general and pathogens)
- to determine ways to be followed to monitor air sectors in poultry plant based on standards
- to taken corrective action, for example, to regulated cooling, heaters (in growing sector of birds)
- to determine procedures for standardization of processes for monitoring and to taken corrective actions
- to verify the HACCP system in poultry meat industry and its products

Each production of recent years on poultry products based on improving inspection systems of new to ensure and demonstrate and the part that analyzed and improve its. Typical example is identification of ***Staphylococcus*** and other pathogens with modern methods of analysis and the use of state programs to reduce their.

in this work will be accomplished:

- Study and isolation of microbial load for Staphylococcus in air sectors to Korça Poultry
- Study of pathogenic microflora in air of poultry sectors
- reducing the degree of resistance to pathogens and their distribution in air of poultry plants where chicken manipulated until the final product “ready for consumption”

MATERIAL AND METHODS

For isolation of ***Staphylococcus*** and other pathogenic bacteria in the air sectors to Korca poultry, were performed the following analysis:

For general air microflora to poultry sectors was used sedimentation method of microbial rain fall. This method is based on the phenomenon of microbial rain, namely, the continuing decline of microorganisms on plate. This method gives results for amount of microorganisms in air. Sedimentation method is simple and suitable for practical work. To determine the number of microorganisms that are in the air of sectors or of a space and the quality of their it is imperative that they be "planted" (cultivated) in the ground plates. In plates with ground:

The mode of action: Initially, taken sterile petri plates. Then, melt terrains in the bathroom water to be used. After cooling at 40-45^{0}C, the terrains emptied in petri plates opening the cover slightly in the flame of the alcohol lamp, and closed them immediately. The plates removed carefully by turning on the table, than leave to cool. After cooling them wrapped with sterile paper. In sectors where it becomes the definition of air microflora, issued from paper plates and placed side by side. They placed in areas where there is no movement or air streams. Then open plates and kept open 20 minutes. After that they closed, back down and incubation in thermostat at 37^{0}C. Then be counted after 24 hours, after 48 hours for bacters, after 7 days for mold. Colonies on blood-agar plates counted after 24 and 48 hours.[2]

Enumeration of colonies become finally by turning from above plate and placing it on a dark background (dark flame paper). Colonies appear in the form of points with different sizes and shapes. To avoid count twice to the same colony, each colony counting marked with ink on the bottom the plate. Colonies that counted considered successor to the cells of microorganisms, therefore, according to the number of colonies grown may determine the quantity of microorganisms that are in the air at the time of cultivation. Air quality can be determined based on the number of colonies growing on the plate. So, for example, if the average number of colonies grown on two plates with ray 4,5-5 cm and with terrain agar and bujon meat that are left at contact with air for 20 minutes, achieves up to 200 colonies, then the considered clean air, whereas, if it is over 200 colonies considered contaminated. [5], [6]

Then conducted biochemical proofs, according to rotating biochemical for Enterobacteriaceae, where colonies on blood agar terrain crossed in Hayn Indol and Water pepton terrains. Here identify if colonies are ***E. coli***, ***Salmonella***, ***Staphylococcus***. After incubation in the thermostat at temperature 37^{0}C, 24 hours. After 24 hours of incubation performed biochemical proof with Indole (dotted). If the terrain takes red color microorganism is ***E. coli*** and if the terrain does not color is ***Staphylococcus***. ***Staphylococcus aureus*** has no gas formation, whereas ***E. coli*** has gas

formation. For identification of colonies prepare preparations with technique dyeing according to gram:

Step 1. Prepared preparation. Switches lamp with alcohol, sterilized ansa on flame of the lamp with alcohol. Placed on lame bacterial culture that deals with ansa than drain and fixed. Than, placed over the place of coloring.

Step 2. Perform coloring of the preparation with crystal violet. Preparation covered by this solution and leave in contact with the solution 1-1,5 minutes. After that, rinsing with sterile distilled water.

Step 3. The solution of lugol is added to preparation that serves as a color fixer. Shed excess amount the solution of lugol. Than, rinsed with sterile water and rinsed with ethyl alcohol that serves as decolour. Step 4. Rinsed preparation and added a second dye Fuchsin.

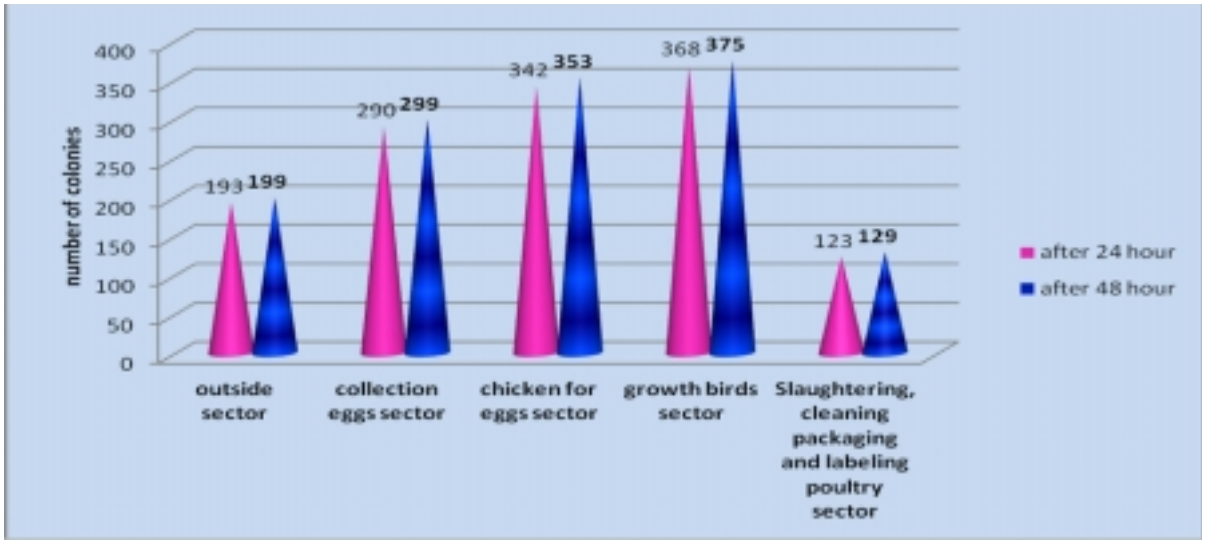
Step 4. After dyeing, when the preparations look at microscope some bacteria have purple-color, while some other color red.

(After dry preparations, throw a point of cedri oil on preparation and look at in the microscope with zoom 100.)

Step 5. Those that are purple are gram positive, others with red color are gram negative.

RESULTS AND DISCUSSION

Figure 1. Air microflora in some sectors at Korca poultry in agar-blood terrain (17/12/12)



Growth birds sector is greater microbial load than the others. The birds, eggs and chickens sectors have microbial load on the norm allowed (on 200 colonies), therefore called sectors

contaminated. Outside sector and slaughtering sector are clean (called not contaminated), because the number of colonies in those sectors is within allowed norm.

Table 1. ***Air microflora in Agar-blood terrain in all sectors of Korça poultry and isolation and identification of pathogens microorganisms (E. coli, Staphylococcus, Salmonella)***

17/12/12		**Terrains**	
		Agar blood	
	Paralels	**Incubation time**	
Sectors		**24 hour**	**48 hour**
Outside Sector	**I**	196	200
	II	190	198
	Average	193	199
The collection of eggs sector	**I**	290	300
	II	290	298
	Average	290	299
Chickens for eggs sector (battery)	**I**	340	350
	II	344	356
	Average	342	353
Growth birds sector	**I**	360	370
	II	376	380
	Average	368	375
Slaughtering, cleaning packaging and labeling poultry sector	**I**	120	128
	II	126	130
	Average	123	129

Table 2. ***Proof with Indole in Hayn and Water-pepton terrains for poultry sectors***

Number of sample		Hayn	Indole	Water pepton
1	Chickens for eggs sector (battery)	+	red	+
2		+	red	+
3	The collection of eggs sector	+	red	+
4		+	red	+
7	Growth birds sector	+	red	+
8		+	red	+
9	Slaughtering, cleaning packaging and labeling poultry sector	+	red	+
10		+	red	+
11	Outside sector	+	red	+
12		+	red	+

When added some points of indole in terrains Hayn Indole and water-pepton take red color. The red color (+) indicates the presence of ***Escherichia coli***. ***E. coli*** is sanitary index. ***E. coli*** indicates the level of personnel hygiene and materials used for the manipulation of poultry (e.g knives, work tables etc…)

For identification of ***Staphylococcus*** and the other microorganisms were prepared the preparations with dyeing according to the Gram and simple preparations.

Staphylococcus aureus

CONCLUSIONS AND RECOMMENDATIONS

In this study, performed at Korca Poultry, we concluded some results and recommendations:

Air microflora in terrain Agar-blood: The largest number of colonies was counted in growth birds sector (375 colonies). This indicates that the air of this sector is not very clear (is contaminated). Should be taken some measures to reduce the load microbial within allowed norms. Should be performed ventilation of the sector. Should be applied throwing the limestone powder for disinfection and reduction of humidity sector.

The smaller number was counted in the slaughtering sector (129 colonies). In this sector, microbial load is within the allowed norm. The sector is clean (is not contaminated). Biochemical proofs and preparations indicated presence of pathogen microorganisms: ***E. coli*** and ***Staphylococcus*** in all sectors at Korca poultry.

In biochemical row when threw two points Indole in Hayn-indole and water-pepton terrains they took the red color. (The red color indicates the presence of ***E. coli***)

Preparations prepared: Gray color colonies were bacilli, whereas, beige (in pink) color colonies were bacilli and cluster of grapes (***Staphylococcus***). The colonies with yellow and orange color were pure Staphylococcus. Prepared colonies preparations in chickens for eggs sector (battery) were tetracoccus, ***Streptococcus*** and ***Staphylococcus*** (cluster of grapes).

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