

## RESEARCH ARTICLE

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**Risk assessment of poultry slaughterhouses in Albania**ROVENA JAHELEZI<sup>1\*</sup>, BIZENA BIJO<sup>2</sup><sup>1</sup>Veterinary Public Health, National Food Authority of Tirana-Albania.<sup>2</sup>Veterinary Public Health, Faculty of Veterinary Medicine, Agricultural University of Tirana-Albania.

\*Corresponding author Email: rovenajahelezi@gmail.com

**Abstract**

The aim of this study is to assess the risk of poultry slaughterhouses in order to achieve a better official inspection. Study is taking place in 5 poultry slaughterhouses in Albania. The study was conducted through two tasks: poultry slaughterhouses classification related to the risk assessment based on the characteristics of the plant, product characteristics, production, hygiene processes, HACCP, and on the identification of presence of *Salmonella* spp in the slaughterhouse environment and in the final product. In every slaughterhouse, inspections are performed every 3 months, by completing the appropriate checklist using point's evaluation. The results show that 5 slaughterhouses resulted in high risk (over 42 points). The detection of *Salmonella* spp in poultry carcasses is based on ISO 6579: 2002 method. 25 meat samples were analyzed in total where, out of which only one sample resulted with the presence of *Salmonella* spp in 25 gr. These results are due to an inappropriate Hygienic Practice, Manufacturing Practice and show that HACCP is not implemented rigorously.

**Keyword:** Risk, Assessment, slaughterhouse, *Salmonella* spp, meat sample.

**Abbreviations:** International Organization for Standardization (ISO), System of Hazard Analysis and a Critical Control Point (HACCP), European Union (EU), European Commission (EC).

**1. Introduction**

EU Food Hygiene Package, and in particular Regulations (EC) No.882/2004 and 854/ 2004[14, 13], stipulate that official controls in establishments must be carried out on the basis of risk classification of the activities involved and, as well as the type and frequency of official controls must be based on risk assessment.

In Albania we don't have a risk classification of the activities involved.

According to above argumentation but also driven by immediate needs of risk classification in Food Business Operators we thought that we are in right position to undertake a study regarding risk assessment in one of the most important businesses of our country such as poultry slaughterhouses[4].

We decided to undertake the study on the topic: "Risk assessment of Poultry slaughterhouses in Albania"

Based on this assessment, we will have the opportunity to do a classification on risk assessment of poultry slaughterhouses.

**2 Material and Methods**

The study was realized through two tasks:

### *1.1 Task 1: Poultry slaughterhouses classification related to the risk assessment based on the characteristics of the plant, product characteristics, production, hygiene processes, HACCP*

To conduct this study are chosen 5 poultry slaughterhouses in Albania.

We used a theoretical risk inherent to a particular establishment, using pre-defined assessment criteria, qualitatively expressed as High, Medium, or Low. The Project CARDS of 2005 "Establishment of the National Food Authority in Albania" produced a comprehensive and documented Technical Guideline for the risk classification of food establishments of animal origin and for setting risk-based priorities of official controls by evaluating 11 criteria grouped in 6 categories, as presented in the table below.

At every slaughterhouse inspections are conducted every three months, filling check list and using point's evaluation.

Basis on risk assessment, poultry slaughterhouse will be grouped in 3 level of risk:

Low Risk (< 30 point) – **L**,

Average Risk (30- 42 points) – **M**

High Risk (over 42 points) – **H**

**Table 111** Criteria for risk classification of food establishments (poultry slaughterhouse)

Category	Category	Low risk	Low/moderated	High/moderated	High	X Factor
<b>1. Characteristics of the establishment</b>	1.1. Date of construction	0	10	20	30	0.10
	1.2. General conditions and maintenance	0	20	40	70	
<b>2. Production</b>	2.1. Size of the establishment and production capacity	0	15	30	50	0.10
	2.2. Size of the market supplied by the establishments	0	15	30	50	
<b>3. Product characteristics</b>	3.1. Type and category of food	0	15	30	50	0.18
	3.2. Intended use	0	15	30	50	
<b>4. Processing hygiene</b>	4.1. Management's expertise and availability to collaborate	0	15	30	50	0.20
	4.2. Training on hygiene and qualifications of personnel	0	15	30	50	
<b>5. Own-checks plan</b>	5.1. Formal thoroughness of the own-checks plan	0	5	15	25	0.22
	5.2. Level of application and adequacy of the plan	0	25	45	75	
<b>6. Past record of compliance</b>	6.1. Irregularities and non-compliances detected in the past	0	30	60	100	0.2

*2 Task II – Identification of Salmonella spp presence in the slaughterhouse environment and in the final product.*

The detection of *Salmonella spp* in poultry carcasses is based on ISO 6579: 2002 method.

### 2.2.1 Sampling

Were collected randomly 15 carcasses (for *Salmonella spp* analyses), during each sampling session and after chilling. A piece of 10 g approximately was cut from neck skin was obtained from each poultry carcass. Before starting the examination, the skin samples from each carcass were deployed in order to form 5 × 25 g final samples[10].

### 2.2.2 Microbiological procedures.

Meat samples were tested for the *Salmonella sp.* presence using ISO. Fresh meat samples were defatted, weighed (25 g), and was externally decontaminated by dipping in absolute alcohol and further flaming. The procedure was followed by homogenization in 225 ml buffered peptone water

(BPW), and incubation for 18 2h at 37 1°C. Thereafter, 3 drops (33 l each) of incubated BPW were inoculated into a modified semisolid Rappaport Vassiliadis (MSRV) medium, and plates and were incubated for 24 3 h at 41.5 1°C (negative samples were re-incubated for an additional 24 h). One microliter of the presumptive *Salmonella* growth (detected by the halo generated in MSRV after 24 or 48 h) was transferred to two selective media (xylosine lysine deoxycholate [XLD] and brilliant green [BG] agars). Suspected colonies were biochemically confirmed (triple sugar iron [TSI] agar, urea agar, L-lysine de-carboxylation medium, and indol reaction)[3].

## 3. Results and Discussions

### a. Evaluation of 11 criteria.

The evaluation was based on plant and product characteristics, production, hygiene processes, HACCP, and we achieved the following results (table 1)

**Table 2** Evaluation Results for 11 criteria in 5 poultry slaughterhouses

Slaughterhouse Code	05-1	Risk Level	05-2	Risk Level	05-3	Risk Level	11-1	Risk Level	11-2	Risk Level
1. February	72.7	H	45.3	H	71.2	H	68.2	H	59.6	H
2. May	73.2	H	44.5	H	67.0	H	68.2	H	57.3	H
3. September	79.3	H	43.4	H	70.8	H	66.8	H	51.8	H

*b. Detection of Salmonella spp in poultry carcasses*

25 meat samples of poultry carcasses in total were analyzed [10, 3] for the detection of *Salmonella* spp in 5 slaughterhouses, out of which only one sample resulted positive with the presence of *Salmonella* spp in 25 gr. According to the Commission Regulation (EC) No 2073/2005 [10] for microbiological criteria of foodstuffs in poultry carcasses the limit detected should be or absence in 25 g pooled samples from neck skin.

According to Technical Guideline for the risk classification of food establishments produced by 2005 CARDS Project have been resulted that poultry slaughterhouses are classified as medium risk, but according to our study the result is of high risk.

#### 4. Conclusions

Official controls in establishments must be carried out on the basis of risk classification of the activities involved and, as well as the type and frequency of official controls must be based on risk assessment [11, 12, 13, 14].

Risk assessment for each food establishment, should be based on it's frequently audit, where is foreseen to be completed the evaluation check list, for 11 criteria defined by point. Laboratory tests should be done in order to verify the accuracy implementation of Good Hygiene-Practices, Good Manufactory Practices and self-control plan (HACCP) [1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13].

A precise classification of food establishment based on risk will guarantee the conditions for their normal functioning hygienic parameters [8, 6].

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