

Microbiological Quality of Chicken Carcasses in Bogor Indonesia Based on *Campylobacter* sp. and *Salmonella* sp. Counts

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INTRODUCTION

Unhygienic handling chicken carcasses during slaughtering until selling to costumers can lead to contamination by pathogenic bacteria such as *Campylobacter* sp., and *Salmonella* sp. entering human's body can cause foodborne disease.

The aims of this study were to detect contamination and enumeration of *Campylobacter* sp. and *Salmonella* sp. in chicken carcasses from poultry slaughterhouses and markets in Bogor Indonesia.

MATERIALS AND METHODS

This study was preliminary study in Bogor especially for *Campylobacter* sp. The samples were taken from 12 chicken carcasses from traditional processing plants, modern processing plants, traditional markets and modern markets in Bogor, were each samples take 3 carcasses. Chicken carcasses was divided into 4 parts, upper chest (A1), lower chest (A2), upper back (B1) and lower back (B2).

Isolation and Enumeration of *Campylobacter* sp., and *Salmonella* sp. counts using Most Probable Number Methods (MPN) referred to The Compendium of Methods for the Microbiological Examination of Food.

RESULT AND DISCUSSION

The result of this study showed that the *Campylobacter* sp., and *Salmonella* sp. counts in chicken carcasses very high and does not meet the standards set by SNI 7388: 2009 on the maximum limit of microbial contamination in the food [1].

Table 1. *Campylobacter* sp. and *Salmonella* sp counts from traditional and modern markets, and traditional and modern processing plants

Lokasi	Batch	<i>Campylobacter</i> sp. (MPN/g)	<i>Salmonella</i> sp. (MPN/g)
Traditional Markets	1	2,00	750,00
	2	1150,00	923,25
	3	405,00	590,00
	\bar{x}	519,00	754,42
Modern Markets	1	2,00	705,00
	2	2,00	334,50
	3	228,00	2,00
	\bar{x}	77,33	347,17
Traditional Plant	1	12,50	2,00
	2	750,00	4,25
	3	1175,00	7,25
	\bar{x}	645,83	4,50
Modern Pocesing Plant	1	6,75	2,00
	2	3,75	4,25
	3	232,50	317,25
	\bar{x}	81,00	107,83

Based on the data in Table 1 it can be seen that the least amount of *Campylobacter* sp obtained from chicken carcasses from modern markets (77.33 MPN/g) and modern processing plant (81.00 MPN/g). *Campylobacter* sp. counts in chicken carcasses from modern markets lower than other place, because most chicken carcasses come from poultry slaughterhouses, which have veterinary control numbers (NKV). In the modern market, chicken is packed in sealed plastic and stored in cold temperatures.

Poultry slaughterhouses in Indonesia generally carry out carcass washing process by dipping carcass into water which has been given chlorine 0.5-1 ppm, at a temperature of 25 °C for 30 minutes. The next process is washing carcass

into cold water at a temperature of $<4^{\circ}\text{C}$ for 45 minutes and then packaging use 2 layers of plastic [2].

The highest *Salmonella* sp. counts comes from chicken carcasses obtained from traditional markets (754 MPN / g). This is caused chicken carcasses from traditional markets are sold open (without cover), placed in open tables without temperature regulation and the seller does not pay attention to the cleanliness of the selling products.

Campylobacter sp. and *Salmonella* sp. contamination in poultry products can occur at stages along the production, distribution, marketing and market chains [3][4]. The overall *Campylobacter* sp. and *Salmonella* sp counts in the samples tested was very high representing a serious risk to the health of consumers, particularly if measures guaranteeing proper cooking of foods and prevention of cross-contamination are not adopted. Furthermore, the majority of campylobacteriosis and salmonellosis cases in humans are caused by consumption or improper handling of contaminated raw or undercooked chicken meat, which constitute the main vehicle of this infection.

CONCLUSION

Unexpectedly, *Campylobacter* sp., and *Salmonella* sp. were detected in almost all of the chicken carcasses in every groups indicating high level of contamination in chicken carcasses.

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