

Prevalence of *Salmonella enteritides* in water birds Carcasses from farmer's houses in Basrah Marshes

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Abstract

The present study was performed to determine the prevalence of *Salmonella enteritides* contamination of water birds carcasses in slaughter shops in Basrah city , 120 samples were collected from meat and Bacteriological examination was done . the results showed that the rate of contamination of meat was (10%).

Introduction

Foodborne diseases are an important public health concern worldwide. According to reports of (WHO, 2003) and the (CDC, 2000) every year a large number of people are affected by disease due to contaminated food consumption . Foods of animal origin are consider major vehicles of foodborne disease (Todd , 1997; Varnam , 1991). *Salmonella* infections are frequent cause of foodborne out breaks and affect several million people worldwide each year (Thorns, 2000; Soutose and Koidis, 2003; Carrminana *et al*, 2004). Infection occur by eating food that is contaminated either from the source animal during slaughter or through cross- contamination during handling and preparation of the food (Wills and Simpson , 1994) . improper-hygiene can also be a source of contamination, proper hand washing and sanitation of area used during cooking can prevent bacteria from being Introduced by the individual preparing the meal (Stiles and McMullen , 1999) studies with humans show an infections dose of 10^5 organisms , however infection can occur at lower doses – in individual who are immunocompromised such as infants , small children or elderly (Baron , (1994)).Poultry and poultry products are frequently contaminated with salmonella that can be transmitted to humans through the handling of raw poultry carcasses and products or through consumption of under cooked poultry meat (Bailey and Cosby, 2003 ; Kimura *et al* , 2004). The study was conducted over a six months interval to investigate trends isolation rates during the period of sampling .

Materials and methods

Sampling :

One hundred twenty – samples were aseptically collected from 60 carcasses by systematic random sampling method during summer 2010 . samples were chosen from meat after dressing

Bacteriological examination

Isolation of *Salmonellae* were done as the standard method (Varnam , 1991). A 25 g sample of raw meat was added to 225 ml of peptone water broth .The tubes were incubated at 37 C⁰ for 24 hrs . the broth (0 .1)ml was inoculated in 10- ml selenite cystine broth and incubated for over night at 42 C⁰ samples were subcultured onto *Salmonella shigella* agar and incubated for over night at 37 C⁰ . *Salmonella* colonies

were screened biochemically using triple sugar iron agar , lysine iron agar and urease media agar over night at 37 C⁰ Antibiotic susceptibility test: was determined by using disc diffusion technique according to Finegold and Martin(1982).

Results

Results of the bacteriological examination on 120 samples from 60 carcasses showed that 12 (10 %) samples were contaminated with *Salmonella enteritides*.

Table 1

Percentage of *Salmonella enteritides* isolated from raw water birds obtained from slaughter shops in Basrah city .

Type of samples	No. of samples	No. of isolates	Positive (%)
Meat (water birds)	120	12	10%

Table 2 Antimicrobial sensitivity test in the examined samples.

Antibiotics	µg/disc	% of sensitivity isolates
Ampicilin	20	11%
Chlromphenicol	30	42%
Cipxofloxacin	5	94.2%
Eutrofloxacin	5	82.8%
Gentamycin	10	66.8%
Neomycin	30	71.2%
Tetracyclin	10	46.4%
Trymethoprim-Sulfamethaxozole	25	20.6%

Discussion

This study indicated that the percentage of *Salmonellae* – positive birds was 10 % at the end of slaughtering process. This indicated that contamination of raw meat occurs during slaughter and dressing (Wallace *et al*, 1998). The study demonstrated that birds is avehicle for potential cross. contamination of *Salmonella* within the food industry, there is a need to reduce carcuss cross contamination During slaughtering and improve hygiene monitoring in processing shops to reduce the chance of contamination of the raw products. Contamination of raw birds has also been reported from the other countries. It depend on the regional variations . for example , the rate was 60 % in Portugal (Antunes *et al* , 2003) , 13 . 18 % in Switzerland (

Baumgartner *et al* , 1992) and 23 . 7 % in poland (Mikdajczgk and Radkowski , 2002) and 8.5% in Iran (Shahrekord) (Kuhin, 1999).

Furthermore, this important to be a ware that birds may cause infection and therefore implement procedures to reduce the risk of illness is necessary this may be avehicle through the implementation of HACCP system in food industries and other environments. Using of freshwater and chlorination of chill waters could reduce the chance of cross- contaminates particularly, through this step. (James *et al* , 1992) . On the other hand, *S. enteritides* was isolated with lower incidence (4.28, 3.64 and 1.54)% by Hui and Das (2001), Murugkar *et al.*, (2005) and El. Zeedy *et al.*, (2007) respectively. live poultry samples. These low incidences of isolation may be due to recently used hygienic control measures used in poultry farms, and the developed methods of rearing of flocks.

Higher results were reported by Jalali *et al* , (2008) (17.9%) and Duarte *et al* , (2009)(9.6%) in broiler carcasses. This may be due to that poultry meat and its products are libale for contamination from different sources at slaughtering, during its production, handling, packing and storage. Regarding the antimicrobial sensitivity test Table (2) using disk diffiusion method, to the isolated bacteria from the previous source showed that ciprofloxacin was the drug of choice follwed by enterofloxacin, gentamicin, neomycin, tetracyclin, chlroamphenicol, trimethoprim-sulfamethoxazol and lowest sensitivity was to ampicillin. This result was assured by Duarte *et al* , (2009) Murugkar et al, (2005).

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الخلاصة

أنجزت هذه الدراسة لتقدير تواجد التلوث بجرثومة السالمونيلا في الطيور المائية المذبوحة في أسواق مدينة البصرة. أذ تم جمع ١٢٠ عينة من اللحم وأجريت عليها الفحوصات البكتيريولوجية. وأظهرت النتائج أن معدل التلوث للعينات المذكورة كانت (١٠ %).