

## **PREVALENCE OF *Listeria monocytogenes* IN FROZEN FISH IN BASRAH CITY MARKETS**

Ghazi M. Jabir Al- Maliki

Marine Science Center, University of Basrah, Basrah, Iraq

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### **ABSTRACT**

The present study was performed on 80 samples of frozen fish . The samples were collected from different shops in Basrah city . *Listeria spp.* Was isolated (13%) of frozen fish , also they were counted in the examined samples. The mean counts were  $8.75 \times 10^2$  CFU/g. of the fish . *L. monocytogenes* differentially identified from other *Listeria* species and could he isolated at (5%) in frozen fish . The drug susceptibility characterization of *L. monocytogenes* cleared that all isolates (100%) were resistant to Ampicilline and Gentamicine . while the other used antibiotics showed different degrees of antimicrobial sensitivity reactions for streptomycin , Tetracycline , Rifampicine and cefotexim.

### **INTRODUCTION**

*Listeria monocytogens* is present in soil , water , vegetables , intestinal contents of a variety of birds , fish , insects and other animals .

Human Listeriosis is asporadic disease which as associated with consumption of under cooked meat , contaminated milk , soft cheese , unwashed raw vegetables and cabbage ( Schuchate et al ., 1992 ) Meat and meat products have frequently been contaminated with *L.monocytogenes* and may serve as vehicle of other pathogenic organisms. In Human , the illness way range from mild to sever sickness. The sever forms if human listeriosis are present as meaning encephalitis followed by septic fections and occasionally isolated organ involvement. Death is rare in healthy adults hut can occur at a rate as high as 30% in persons at highest risk ( Demetrios et al. 1996) *L. monocytogenes* is the etiologic agent of about 98% of human and of 85%

animal cases ( McLauchliu , 1987) .Because of its ability to survive and proliferate at refrigeration temperature , *L.monocytogenes* may cause disease through frozen foods( Scillinger et al. 1991 ). The organism can grow over the temperature range of about 1 C° to 45C° , and The pH range 4.1 to around 9.6, it way be expected to survive in foods for long periods of time ( Ryser et al., 1985 ).

## **MATERIALS AND METHODS**

### **1. Collection of Samples :-**

A total of 80 samples were collected from different locations in Basrah city for examing the presence of *Listeria monocytogenes* . The samples was warped aseptically in strile polyethylene bag, then labeled and transferred as quickly as possible to the laboratory.

### **2. Bacteriological analysis :-**

#### **A- Isolation**

Twenty five grams of samples were homogenized with 25 of *Listeria* enrichment broth in sterile Mnlinex type blender equipped with metallic flask for 1 min. and incubated at 37C° for 48 h. after incubation one lopful was subcultured on listeria selective medium ( Oxford agar) according to Oxoid Manual (1990).

#### **B- Enumeration :**

Counting of *L. monocytogenes* was achieved by direct plating of decimal dilutions of prepared sample ( APHA , 1992 ) onto plates of Oxford agar . The plates were incubated at 37C° for 24-48 h. and typical colonies presumed to be *L. monocytogenes* were counted .

#### **C. Identification :**

Colonies suspected to be *L. monocytogenes* were identified according to Koneman et. Al, (1996) and Quim et, al (2002) ad characterized according to Margoles et l, (2000) by Gram stain, tumbling motility, V.P, Catalase , oxidase , hemolysis of horse blood agar and CAMP test .

### 3. Antimicrobial susceptibility testing :

All isolated obtained in this study were tested for antimicrobial susceptibility by disc diffusion methods as described by finegold and Martin ( 1982) using antimicrobial agents , using the following disc , chlrapheicol (30 Mg) . , Norflexacin (10 Mg). Rifampin ( 5 Mg) , tetracycline ( 30 Mg) , Gentamicin (10Mg) and Ampicillin (10 Mg) .

## RESULTS

Table 1: Incidence of *Listeria* species and *Listeria monocytogenes* in the examined samples .

| Type of samples | No. of samples examined | Positive samples of <i>Listeria Spp</i> |    | Positive samples of Positive samples of <i>Listeria Spp</i> |   |
|-----------------|-------------------------|---|----|---|---|
|                 |                         | No.                                     | %  | No  | % |
| Frozen fish     | 80                      | 10                                      | 13 | 4   | 5 |

Table 2 : Statistical values of *Listeria* species in the examined samples

| Type of sample | Minimum         | Maximum            | Mean               | Standard of error |
|----------------|-----------------|--------------------|--------------------|-------------------|
| Frozen fish    | $3 \times 10^2$ | $12.1 \times 10^2$ | $8.75 \times 10^2$ | $3.7 \times 10^2$ |

Table 3 : Antibiotic sensitivity test for *Listeria monocytogenes* isolates

| Antibiotic agent | Frozen fish<br>(4 isolates) |             |
|------------------|-----------------------------|-------------|
|                  | Sensitive %                 | Resistant % |
| Chlarmphenicol   | 4 (100% )                   | 0 (0.0 % )  |
| Streptomycin     | 3 (75% )                    | 1 (25 % )   |
| Norfloxacin      | 4 (10.0% )                  | 0(0.0%)     |
| Tetracycline     | 2 ( 50 % )                  | 2 (50%)     |
| Rifampin         | 2(50 %)                     | 2(50%)      |
| Cefotaxim        | 1(25 %)                     | 3(75%)      |
| Gentamicine      | 0 (0.0%)                    | 4(100%)     |
| Ampicillin       | 0(0.0%)                     | 4(100% )    |

## DISCUSSION

Results given in table 1 revealed that 13% of *Listeria spp* were isolated from 10 out of 80 samples of frozen fish . while 5% of *L. monocytogenes* were isolated from 4 out of 80 samples.

Table 1 reveals that the percent of *L SPP* in frozen fish was 13% which was lower than that obtained by Weagant et al ,1988 (61%) and Thakor 1992 35%.

Many investigators detected the presence of *L. monocytogenes* in frozen fish in variable levels as Wong et al., 1990. 10.5 % .

Table 2 shows that the count in *Listeria SPP* in the examined frozen first samples ranged from  $3 \times 10^2$  to  $12.1 \times 10^2$  with a mean value of  $8.75 \pm 3.7 \times 10^2$  CFU/g.

The drug susceptibility is one of the important factors of characterization of *L. monocytogenes*.

Antibiotic sensitivity testing indicated that chlramphenicol and Norfloxacin were the most effective antibiotics , while Ampicillin and Gentamycin were not effective . The other used antibiotics showed different degrees of antimicrobial sensitivity reactions ( Table 3 ) : Chlramphenicol and Narflexacin are considered as the antibiotic of choice, Ibrahim and Hassan (2006).

### تواجد جرثومة *Listeria monocytogenes* في الأسماك المجمدة في أسواق مدينة البصرة

غازي صالح جابر

قسم الأحياء البحرية، مركز علوم البحار ، جامعة البصرة، البصرة، العراق.

#### الخلاصة

جمعت ثمانون عينة من الاسماك المجمدة من محلات مختلفة لبيع الأسماك في البصرة ، تم عزل وعد جرثومة الليستريا ونسبة 13% وانت نسبة الليستريا مونوسايتوجينز 5%، طبق فحص اختبار الحساسية الدوائية على هذه الجرثومة أن جميع العزلات (100 %) مقاومة للامبيسيلين والجنتاميسين، بينما اظهرت غيرها من المضادات الحيوية المستخدمة درجات مختلفة من ردود فعل الحساسية لمضادات الميكروبات الستربتوميسين ، التتراسيكلين ، والسيفوتوكسين والرافاميسين.

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