Enteropathogen of Some Fresh Water Fish
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ABSTRACT

This study aimed to, isolation and identification of Salmonellae and Enteropathogenic E. coli in fresh water fish. This study was carried out on a total of 140 random samples of fresh water fishes represented by Tilapia niloticus, Clarias lazera, Bagrus bayad and Mugil cephalus (35 of each) were collected from different Markets in El- Behera Governorate. The samples were placed separately in clean sterile plastic bags and transferred in an insulated ice box to the laboratory under complete aseptic conditions without any delay. All collected samples were subjected to microbiological, biochemical and serological examination.

The incidence of Salmonellae in tilapia, Mugil cephalus, Bagrus bayad and Clarias lazera 57.10, 17.1, 34.30 and 17.1 respectively. While The incidence of E. coli in tilapia, Mugil cephalus, Bagrus bayad and Clarias lazera 57.10, 91.40, 100 and 100 respectively.

INTRODUCTION

Fish is the best animal protein due to its high Nutritive value as well as its high quality. Also, fish is rich in calcium and phosphorous and generous supply of B-complex vitamins as well as its lower content of cholesterol. Fish is a mirror of lakes and rivers where it reflects an image to the microbiological contamination and chemical pollution of water which in turn affect fish quality for human consumption (Banwart, 1989).

Fish flesh is generally sterile immediately after catching (Kasing et al., 1999); however, it may become contaminated with different microorganisms during subsequent handling (Sumner and Rose, 2002) as these microorganisms can penetrate from skin (Samaha et al., 2004) and the gut to the flesh (Aziz and Dapgh, 2005) example Salmonellae as a microorganism (enterobacteriaceae) (Kisla and Uzugm, 2008) act as a public health hazard if present where it cause food poisoning. Also Enteropathogenic E. coli may constitute a public health hazard as it may give rise to severe diarrhea in infants and young children as well as food poisoning and gastroenteritis among adult consumers (Pao et al. 2008).

The best methods for detection and identification of Salmonellae and E. coli in fresh water fish commonly depend upon microbiological examination which depend on morphological characters and identification of bacteria (Engelbrecht et al., 2008 and Elshahid et al., 2009) as well as biochemical examination that depend upon the biochemical characters of the fish (Voidarou et al., 2011), also serological identification is the best method for detection of antigen in Salmonellae and E. coli as somatic (O antigen) and H flagellar antigen of Salmonellae (Sheen et al., 2012).

This study aimed to, isolation and identification of Salmonellae From some fresh water fish and isolation and
identification of enteropathogenic E.coli from some fresh water fish.

MATERIALS AND METHODS

1-collection of sample:
A total of 140 random samples of fresh water fishes represented by Tilapia niloticus, Claries lazera, Bagrus bayad and Mugil cephalus (35 of each) were collected from different Markets in EL Bohiera Governorate. The samples were placed separately in clean sterile plastic bags and transferred in an insulated ice box to the laboratory under complete aseptic conditions without any delay all collected samples were subjected to microbiological examination.

-Microbiological identification: - Staining and motility test (Cruickshank et al., 1975).


RESULTS

Table (1): Incidence of isolates Salmonellae among different fish species.

<table>
<thead>
<tr>
<th>Species</th>
<th>Total number</th>
<th>+ve samples</th>
<th>-ve samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Tilapia</td>
<td>35</td>
<td>20</td>
<td>57.10</td>
</tr>
<tr>
<td>Mugil cephalus</td>
<td>35</td>
<td>6</td>
<td>17.10</td>
</tr>
<tr>
<td>Bagrus bayed</td>
<td>35</td>
<td>12</td>
<td>34.30</td>
</tr>
<tr>
<td>Clarias lazera</td>
<td>35</td>
<td>6</td>
<td>17.10</td>
</tr>
</tbody>
</table>

\( \text{Chi}^2 = 50.34^{***} \)

*** = Significant at (P < 0.001)

Table (2): Incidence of E. coli isolates among different fish species.

<table>
<thead>
<tr>
<th>Species</th>
<th>Total number</th>
<th>+ve samples</th>
<th>-ve samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Tilapia</td>
<td>35</td>
<td>20</td>
<td>57.10</td>
</tr>
<tr>
<td>Mugil cephalus</td>
<td>35</td>
<td>32</td>
<td>91.40</td>
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<td>35</td>
<td>35</td>
<td>100</td>
</tr>
<tr>
<td>Clarias lazera</td>
<td>35</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

\( \text{Chi}^2 = 110.91^{***} \)

*** = Significant at (P < 0.001)
**DISCUSSION**

Table (1) show that, the *Salmonellae* isolates differ in its incidences significantly (P < 0.01) among different fish species.

The incidence percentage determination according to microbiological identification showed a higher percentage in Tilapia (57.10 %) and Bagrus bayed (34.30 %) and the lower percentage observed in Mugil cephalus and Clarias lazera (17.10 %) for them respectively.

These variations Could be attributed to the fish species, environments, methods of catch, extend of handling during transportation and distribution as well as marketing (Wang et al., 1994).

Table (2) show that, the E. coli isolates differ in its incidences significantly (P < 0.01) among different fish species.

The incidence percentage determination according to microbiological identification showed a higher percentage showed a higher percentage in Bagrus bayed and Clarias lazera (100 %) followed by Mugil cephalus (91.40 %) and Tilapia nilotica (54.28 %) respectively.

The higher incidences of E. Coli in claris lazera and Bugerus bayed attributed to the claris lazera and Bugeus bayed commonly bred in the area that contaminated with sewage that causes increasing the level of E. Coli in this two species than the tilapia and mugil cephalus where they bred in area away from the sewage pollution. Oure results agreed with those of (Heinitz et al., 2000) where they reported that, Coliforms do not seem to represent the normal flora of the fish which become contaminated with such organisms whene exposed to polluted water.

disagreed with those of (Etzel et al., 1998) where they failed to recognize Salmonellae species in freshwater fish over a period from 1994 to 1997.

**REFERENCES**


