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MICROBIOLOGICAL EXAMINATION OF FISH

Ansari Nayab Taher*

Dept. of Zoology, Sir Sayyed College, Aurangabad.

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***Corresponding Author**
Ansari Nayab Taher
Dept. of Zoology, Sir Sayyed College, Aurangabad.

ABSTRACT'

The study deals with the isolation of different food poisoning organisms. From fish. Salmonella, Shigella and V. Parahemolyticus were found to be present in the fish samples. The M.P.N. Count exceeded the standard Values. The organisms were subjected to antibiotic sensitivity test. It was found that these organisms had developed resistance to most antibiotics.

KEYWORDS:- Food poisoning organisms, Fish, Antibiotic sensitivity.

INTRODUCTION

Increasing attention has been focused on salmonella, shigella, and V.parahaemolyticus as a causes of fish borne food poisoning .contamination of raw sea food is one of the major health hazards. The emergence of V. parahemolyticus, Salmonella spp. and Shigella spp. in marine and estuarine fauna is of interest because most of the outbreaks of gastroenteritis have been caused by the consumption of contaminated seafood.

In general, Fish is more prone to microbial spoilage than is meat because it has a low pH and is less moist, due to the low ambient temperature in marine and fish Water, the bacterial flora associated with fish include greater percentage of psychrotrophs and halpohilic bacteria. Large number of bacteria arc frequently found in the slime on the skin surface. Which can support the growth of many bacteria which contaminate fish after catching (Macleod, 1965) coliform organisms and Staphylococcus aureus are good indicators of the standard of hygiene during handling Shewan (1970) suggested that the following standards he adopted:

A general viable count at 35-37°C of not more than 105/gram a coliform count of less than 200/gram (E.coli less than 100/grm) Staphaurues fewer than 100/grm. The mode of transmission is by ingestion of raw or inadequate by cooked sea foods production of

haemolysin is one of the virulent factor among the toxins of V. parahaemolyticus this then-no stable direct haemolysin could be a major factor contributing to the pathogenicity of V. para haemolyticus.

During the last few decades there has been an indiscriminate use of antibiotics and metals in animals husbandry and agricultural practices. Minute concentration of these ultimately find its way into various natural habitats. Hence the bacteria isolated from these habitats may show ecologically important capabilities such as metal tolerance and antibiotic resistance.(Banupriya et al.1999). Hence an attempt was made to the microbiological examination of fish by isolating and identifying different types of Microorganisms and to study their antibiotic tolerance in marketed fish from Beed district.

MATERIALS AND METHODS

Fish samples were collected from the market and rinsed with sterile saline to remove any adhered particle. Swabs of body surface and intestine were inoculated-in-screw cap bottles containing MacConkeys broth and alkaline peptone water respectively and incubated at 37° C for 24 hours. The enriched culture from MacConkeys broth was streaked on Salmonella shigella agar and the enriched culture of alkaline peptone water was streated on TCBS plates. Bluish green coloured colonies on TCBS media were isolated as presumptive V. parahemoly ticus. similarly large white opaque colonies on Salmonella Shigella (ss) agar were presumptive of Salmonella and small transparent colonies with even margin were presumptive of Salmonella Shigella (ss) agar. All the culture were further identified Microscopically and confirmed biochemicaly by using standard method prescribed by Harrigan Mc Cance (1976). All three isolates were subjected to undergo autibiotic sensitivity test by disc diffusion method employing multi disc method of Bauer et al (1966) for twelve different antibiotics and the MPN count was also determined.

RESULTS AND DISCUSSION

A total of 100 fishes were analyzed randomly thought the year for the incidence of different food poisoning bacteria. It was found that market fish examined had a higher frequency of occurrence of these microorganisms as compared to freshly caught fish. The different types of cultures isolated and identified were salmonella, shegilla and V.Parahemolyticus. The MPN count exceeded the standard limits. After subjecting to antibiotic sensitivity test The percent resistant was determined.

Table 1: Antibiotic Sensitivity for different Microorganisms isolated from fish.

Antibiotics	Salomonella		Shigella		V.Parahemolyticus	
	Total isolates examined 30		Total isolates examined 12		Total isolates examined 10	
	No of isolates showing resistance	Percent resistance	No of isolates showing resistance	Percent resistance	No of isolates showing resistance	Percent resistance
Ampicillin	22	73.3	10	83.3	00	--
Ciprofloxacin	7	23.3	08	66.66	07	70
Chlormphenicol	00	00	04	33.33	01	10
Erythromycin	16	53	10	83.3	03	30
Furamycin	00	00	02	16.66	05	50
Gentamycin	03	10	16	50.00	02	20
Norfloxacin	00	00	04	33.33	06	60
Penicillin	14	46.6	00	00	08	80
Rifampicin	15	50	00	00	07	70
Streptomycin	00	00	12	100	02	20
Tetracyclin	00	00	07	58.33	09	90
Vancomycin	15	50	05	41.66	00	00

It was found that for salmonella it exhibited 73.3% resistance. & was sensitive for chloramphenical, furamycin. Streptomycin and tetracycline. shigella exhibited 83.% resistance for Ampicillin, Erythromycin while V. Parahemalvticus exhibited 90% resistance to tetracycline. Similar results have been demonstrated for V.Paraemolyticus using different antibiotics isolated from fin fishes and prawns by Banupriya et a. (1999).

It was finally concluded that higher incidence of different food poisoning bacteria in fishes is major health hazard for humans also, as also these organisms are developing multiple resistance to antibiotics which is another reason for outbreak of food poisoning epidemics.

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