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**Keywords:** *P. pelagicus*; *P. sanguinolentus*; Seasonal variation; Gut micro ora

## Introduction

Seafood related disease outbreaks have been reported almost throughout the world including countries like Japan, U.S, India and U.K. International Committee for Microbiological Food Safety

for identification. To check the capability of enzyme production in these bacteria the primarily method was carried out such as Starch hydrolysis (Amylase activity) and Gelatin hydrolysis (Protease activity).

## Statistical Analyses

Analysis of variance is used to test the homogeneity between the dilution factor and sexes of *P. pelagicus* and *P. sanguinolentus* with different stations and also tested with monthly variables [2].

## Results

In Parangipettai Station I, the surface water temperature varied from 22.3°C (November 2009) to 34.5°C (April 2009). The salinity during sampling period was ranged from 20.5 (Nov 2009) to 34 ppt (May 2009). The sea water pH was slightly alkaline. The pH was ranged from 7.8 (Dec 2008) to 8.5 (May 2009). However in Cuddalore O.T Station II, the surface water temperature varied from 22.1°C (November 2009) to 32.5°C (April 2009). The salinity during sampling period ranged from 22 (December 2009) to 34.5 ppt (May 2009). pH ranged from 7.8 (December 2008) to 8.4 (May 2009).

Results of the seasonal quantitative estimation of total heterotrophic bacteria in the gut of crabs were obtained. The total viable count of bacteria in the gut of crabs in Parangipettai was ranged from  $3.2 \times 10^6$  to  $2.54 \times 10^7$  Cf/g ml<sup>-1</sup> in the month of June and the lowest count was observed in the month of November. In Cuddalore O.T, it ranged from  $3.3 \times 10^6$  to  $2.8 \times 10^7$  Cf/g ml<sup>-1</sup> in the month of June and minimum were observed in the month of October. Among three different sites, site III (Fish market) had highest values of colonies than landing centre and auction place of both the stations. The male consists of highest microbial count than females and berried. *P. sanguinolentus* was observed to have the highest microbial count than in *P. pelagicus*.

It was identified up to the genus and species level about 86% of the isolates grown on Zobell's marine agar and by biochemical tests. In all the sampling sites, the gram-negative bacteria prevailed over the gram-positive ones. Colony morphology of the isolates showed circular, irregular and mucoid with different types of margin, such as entire and circular. Size of the colonies and evaluation were also quite distinct from each other. In this study 6, bacterial genera from the gut of crabs were identified.

*V. parahaemolyticus*

show higher number of bacteria than landing centre and auction place. The highest bacterial count in fish market samples was mainly due to secondary contamination. This starts right from the landing site to fish market sites. In general, the fishes in the landing areas are washed to remove adhering sand by using the contaminated coastal waters and also fisher folks sprinkle wet sand over the crabs to delay out spoilage. But actually this hastens the process of spoilage due to the high level of bacterial contamination of beach sand. The crabs are also transported and marketed in unrefrigerated condition and in ambient temperature. Hence, it is obvious that the tropical warm climate throughout the years would favor multiplication of the bacteria compared to those in temperate environment. Handling repeatedly, when transported from one place to another also increases bacterial contamination.

In Cuddalore O.T, the landing time of the crabs is usually in early morning (4 am) hours and the crabs are sold up to 9 am. The time from 4 am to 9 am is sufficient for multiplication of microbes in the crabs. By this time, the fisher folk uses poor quality of ice and washing with contaminated waste waters also enhance microbial populations whereas in Parangipettai coast, landing time is around 7:30 am and the crabs are sold up to 10:30 am and this area is also free from pollution. The time for landing to sale of crabs is very short. This attribute high microbial load in Cuddalore O.T than in Parangipettai coast. Bryan [3] and Sakthivel [4] used contaminated waste water for washing the fishes at landing area. Hence, they observed bacterial contamination in their studies. So they recommended for the use of good quality of water for washing and processing of fishes to avoid bacterial contamination. Stewart et al. [5] reported that commercially captured crabs are presumed to suffer the most injuries due to crowded conditions of capture and rough handling.

The crabs are transported from the landing to market place by keeping them in ice to avoid spoilage by bacterial contamination. If contaminated water is used for the preparation of ice, it is used as a source of microbes to spoil the crabs. Barile et al. [6] found that the shelf-life of Faughn's mackerel in ice was reduced by the day for each hour of delay in icing/exposure to ambient temperature of 26-30°C. When bacterial quality of the ice is not good, it affects the quality of fish.

High microbial load in the Cuddalore O.T may be due to pollution by means of untreated sewage disposed into the coastal waters. The present results are very close to the study of Ramamoorthy [7]. He reported that pollution of coastal waters by untreated sewage has resulted in the spread of microbial pathogens. Impairments of water quality is of prime concern as water is a potential source of contamination of seafood. The special interest is the involvement of several allochthonous microbes, many of which are public health hazards.

In the present study, males had maximum numbers of bacteria than females and berried. Differences in bacterial counts between male and female crabs were also observed [8]. They explained that males, which predominated in the summer samples, had a higher incidence of injury and missing appendages than did females. High microbial load in the males may be due to the loss of appendages. In contrast, it was reported that the presence of detectable bacteria in the crab did not associate with the sex of the animals [9].

Environmental parameters such as temperature, salinity, pH and dissolved oxygen played a major role in the distribution of total heterotrophic bacteria in any aquatic system [9-11]. Generally, the bacterial loading was high except during winter, one of the reasons possibly being that the high ambient temperature in the water was close



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