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Research Article

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Haemolytic Activity of Vibrio species

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Abstract

The entire species were tested for haemolytic activity using blood agar plate supplemented with 5% sheep blood. In this present study, fourteen strains exhibited positive for haemolytic activity. The percentages of alpha, beta and gamma haemolysis by the Viorio species were 14, 22 and 64% respectively.

Introduction

Sea foods are prone to bacterial contamination, especially filter feeders such as mussels and oysters, which concentrate these bacteria in their filtration systems and therefore, are ideally suited to trap all bacteria and viruses, pathogenic or otherwise that live in the water (Popovic *et al.*, 2010). They also occur in both marine and fresh water habitats and in associations with aquatic animals. Some species are pathogens of fish, eels and frogs as well as other vertebrates and invertebrates (Todar, 2005).

V. vulnifus is another organism of great concern in seafood safety due to the severity of the disease and the high mortality rate it can cause (Chun *et al.*, 2009). In addition *V. vulnificus* is a potentially lethal food borne pathogen and capable of causing primary septicemia and necrotizing wound infections in susceptible individuals (Harwood *et al.*, 2004; Merwad *et al.*, 2011). Other species that have been increasingly recognized as food pathogens in recent years are *V. mimicus* and *V. alginolyticus. V. mimicus* has genetic and many biochemical similarities to *V. cholerae* and its pathogenicity involves several toxins including that of *V. cholerae*. Many food-borne outbreak cases involving *V. mimicus* have been reported (Hlady and Klontz, 1996).

This present study focused on the isolation of *Vibrio* species from marine food resources such as fish and crustacean. Study the haemolytic pattern of isolated vibrios was performed.

Materials and Methods

The *Vibrio* species that can able to produces hemolysin were tested on blood agar plates. Blood agar was prepared by using Blood agar base (Himedia) supplemented with 5% sheep. All the *Vibrio* species were inoculated in blood agar plates by a single streak/dot. The inoculated plates were incubated at37 °C for 24 hours and hemolytic activity was observed.

Results and Discussion

Haemolytic activities of *Vibrio* species were tested on blood agar plate with 5% sheep blood. In this present study, fourteen (14) strains exhibited positive for haemolytic activity. Among these, two strains viz. *Vibrio cholerae* and *V.parahaemolyticus* showed alpha haemolysis; three strains viz. *V. costicote*, *V.mimicus* and *V. vulnificus* showed beta haemolysis; and nine strains viz. *V.cincinnatiensis*, *V. fumisii*, *V. harveyi*, *V.logei*, *V. netreiqens*, *V.orientalis*, *V.proteolyticus*, *V. splendidus* and *Vibrio sp.2* showed gamma haemolysis (Table 1, Figure 1). The occurrences percentages of alpha, beta and gamma haemolysis by the Viorio species were 14, 22 and 64% respectively.

Table :1 Haemolytic activities of isolated *Vibrio* species

Sl. No.	Species name	Heamolytic activity
1	*V. alginolyticus*	Negative
2	*V.cholerae*	Alpha haemolysis
3	*V. campbellii*	Negative
4	*V. cincinnatiensis*	Gamma haemolysis
5	*V. ctioteree*	Negative
6	*V. costicote*	Beta haemolysis
7	*V. fumisii*	Gamma haemolysis
8	*V. harveyi*	Gamma haemolysis
9	*V.logei*	Gamma haemolysis
10	*V. mediterranei*	Negative
11	*V. metschnikovii*	Negative
12	*V. mimicus*	Beta haemolysis
13	*V. netreiqens*	Gamma haemolysis
14	*V. orientalis*	Gamma haemolysis
15	*V.parahaemolyticus*	Alpha haemolysis
16	*V. pelagius*	Positive
17	*V. proteolyticus*	Gamma haemolysis
18	*Vibrio sp.1*	Negative
19	*V. splendidus*	Gamma haemolysis
20	*Vibrio sp.2*	Gamma haemolysis
21	*V. vulnificus*	Beta haemolysis

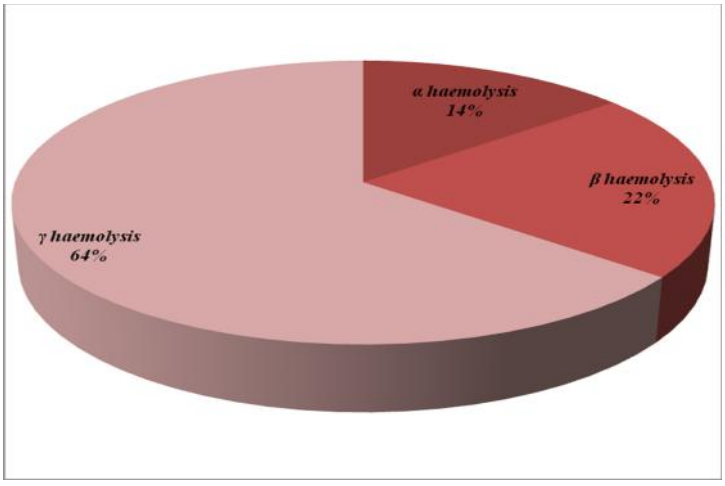

Figure 1: The occurrences percentages of haemolysis activity

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