

## BACTERIAL PROFILES IN SHRIMP CULTURE SYSTEMS AFFECTED BY WHITE SPOT EPIZOOTIC

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Outbreaks of white spot disease occurred during the year 1996 resulting in mass mortalities of shrimps in culture ponds. The estimated loss from these mortalities in terms of foreign exchange during this period amounted to approximately Rs.1000 million. The moribund shrimps affected by the disease were often found associated with signs related to bacterial infections.

In the present study, bacterial profiles of shrimp culture systems affected by White Spot Virus (WSV) bordering the Dutch canal and the Chilaw and Puttalam lagoons, were investigated. Total bacterial counts (TBC), sucrose positive and sucrose negative vibrio populations and luminescent bacterial (*Vibrio harveyi*) counts were studied in moribund shrimps with typical white spots, those without signs and also in healthy shrimps, together with water and sediment samples from infected ponds.

The infected ponds bordering the Dutch canal recorded the highest TBC of  $6.6 \times 10^4 \pm 2.96/g$  and  $7.3 \times 10^6 \pm 2.18/g$  in water and sediments, respectively. The sucrose positive vibrio were high in the water ( $1.5 \times 10^3 \pm 0.89/g$ ) and sediment ( $6.8 \times 10^3 \pm 3.76/g$ ). Similarly, sucrose negative vibrio were also found to be high in the water ( $5.9 \times 10^3 \pm 1.01/g$ ) and the sediment ( $3.6 \times 10^4 \pm 4.92/g$ ) in these ponds.

In moribund shrimps with external signs of WSV infection, the bacterial populations were highest in the hepatopancreas, followed by carapace, muscles and gills, respectively. Luminescent bacteria were observed only in ponds bordering the Chilaw lagoon.

The TBC were relatively high in moribund shrimps with typical signs of WSV infection ( $2.5 \times 10^8 \pm 0.78/g$ ) and this was followed by moribund shrimps without typical signs ( $5.8 \times 10^5 \pm 1.13/g$ ) and healthy shrimps ( $8.3 \times 10^4 \pm 2.36/g$ ).

All bacterial profiles were found to be high in moribund shrimps with typical signs of WSV infection when compared with other categories of shrimps. In the brackish water system of shrimp culture in the North Western Province, the quality of water in relation to bacterial counts was poor in farms bordering the Dutch canal.