

# **Pathogenesis of a marine *Vibrio* species and *Pseudomonas putrefaciens* infections in adult Pearl Oysters, *Pinctada maxima* (Mollusca; Pelecypoda).**

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## **Abstract**

The pathogenicity of *Vibrio harveyi* and *Pseudomonas putrefaciens* for mature pearl oysters, *Pinctada maxima*, was investigated. *Vibrio harveyi* was originally isolated from the haemolymph of diseased oysters in northwest Western Australia and *P. putrefaciens* from the haemolymph of diseased oysters in the laboratory.

Pathogenicity was examined in oysters held at 19°C and 29°C. Both organisms produced disease when inoculated into the mantle cavity or extrapallial space of the oysters but the incidence of disease and mortality was markedly greater at 19°C. The mortality of infected oysters was also greater at 19°C than the mortality of both infected and uninfected oysters at 29°C.

*Vibrio harveyi* was shown to be both toxogenic and invasive in this mollusc. The cellular products of *P. putrefaciens* appear to be less toxic. Toxicity due to *V. harveyi* appears to be broad whereas that due to *P. putrefaciens* is more specific and appears to involve compromise of the oysters cellular defence mechanism.

Oysters at 19°C were shown to be in poorer condition than those at 29°C with the use of dry weight/wet weight ratio method of measurement. It is postulated that slower physiological reactions at 19°C impair the oysters ability to osmoregulate.

Attempts to correlate  $\beta$ -Glucuronidase levels in haemolymph with bacterial infection were unsuccessful, and it is suggested that alternative assaying techniques be examined.