Molecular differentiation of clinical and non-clinical isolates of *Vibrio parahaemolyticus*

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Abstract

Vibrio parahaemolyticus is a human gut pathogen associated with ingestion of fish and shellfish. However, it is believed that most *V.parahaemolyticus* isolates from the marine environment are harmless. Clinical isolates are thought to possess virulence factors absent from the majority of environmental isolates. The aim of this study is to develop a quick test to distinguish virulent isolates from avirulent isolates. Sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE) has been performed on a collection of 43 *V. parahaemolyticus* isolates and 4 related species to compare whole cell soluble proteins and extracellular products (ECP) of all isolates. The known putative virulence factors of all the isolates have been investigated. The thermostable direct haemolysin (TDH) was tested using Wagatsuma agar. All isolates were assayed for enzymatic activity including phospholipase, protease and lipase as virulence factors which are thought to play an important role in pathogenesis of *V. parahaemolyticus*, In addition, urease which is suggested to be a marker for virulence has been tested. Chinese Hamster Ovary cells (CHO-K1) were exposed to extracellular products (ECPs) to test for cytotoxic effects. Results suggest that there is an additional whole cell protein band in some but not all clinical isolates and a few environmental isolates of *V.parahaemolyticus* which could be used to distinguish virulent from avirulent isolates and developed into a quick test.