

Assessment of microbiological quality of oysters (*Crassostrea madrasensis*) harvested in different locations of Puttalam Lagoon in Sri Lanka

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At present bivalve farming in Sri Lanka is at early stages and there is a great potential for development of bivalve culturing as an industry for local and export markets. Puttalam Lagoon has been identified as one of potential sites for farming of oysters (*Crassostrea madrasensis*) which has high demand over other edible bivalves. Oysters are filter feeders and able to ingest particles in suspension that may carry pathogenic microorganisms. This may pose a health risk to consumers when oysters are consumed in raw. The aim of the study was to evaluate the microbiological quality of oysters and lagoon water from respective oyster growing sites, including Kalpitiya, Kandakuliya, Anaiwasal, Janasawipura and Gangewadiya in Puttalam District. In 2016 and early 2017, 100 of oysters and 42 of lagoon water samples were collected and analysed for total bacterial count (TBC), coliform, faecal coliform, *Escherichia coli*, *Salmonella* sp., *Vibrio cholerae* and *Vibrio parahemolyticus*. TBC of oyster samples ranged from 10^3 - 10^7 CFU/g and 88% of samples had less than 5×10^5 CFU/g. Of the 100 oyster samples, 86% and 77% of samples remained contaminated with coliforms and faecal coliforms, respectively, at acceptable levels. *E. coli* were detected only in 60% of oyster samples while unacceptable levels (>2.3 MPN/g) were detected in 39% of these samples. *Vibrio cholerae* and *V. parahemolyticus* were absent in all oyster and water samples. Of all samples tested, one oyster sample and one water sample were contaminated with *Salmonella* sp.. TBC of water samples were in the range of 5.0×10^1 – 7.0×10^5 CFU/mL. About 21 and 26% of water samples were free from coliforms and *E.coli* respectively, while rest of the samples were contaminated with coliforms, faecal coliforms and *E.coli* in the range of 1 to >1800 MPN/100 mL. According to current microbiological quality of oysters and lagoon water, harvesting areas studied can be classified as class “B” based on European shellfish harvesting area classification criteria. The present study also revealed that microbiological quality of harvested oysters and growing water is unacceptable in some instances and the need of depuration of oysters before consumption as raw product or cooking by approved methods.

Keywords: depuration, filter feeding, microbiological quality, oysters

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