

Bacteriological comparison of cockles from three producing areas in Peninsular Malaysia

Abstract

Kuala Sg. Jarum Mas, Kuala Sepetang, the river estuaries in the state of Perak and Kuala Juru in Penang have been identified as major cockle producing areas under the Balance of Trade (BOT) program for mollusc. Since the bacteriological assessment of cockles from Kuala Sepetang and Kuala Sg. Jarum Mas has not been carried out before, this study was initiated to compare the bacteriological quality of cockles from these areas as compared to the extensively studied area, Kuala Juru. Cockles were collected in February, April and June 2004 and examined for Standard Plate Count (SPC), total coliform (TC), fecal coliform (FC) counts, *Escherichia coli* (EC) counts and presence of pathogens (*Salmonella* spp., *Vibrio cholerae* and *Vibrio parahaemolyticus*). Sample collection and analyses were carried out according to standard microbiological methods. The results indicated that cockles from Kuala Juru and Kuala Sepetang exceeded the safety level for SPC (5×10^5 CFU/g), FC (< 300 MPN/100 g) and EC counts (< 230 MPN/100 g) while, result from Kuala Sg. Jarum Mas falls below the safety level for the same parameter. Statistical analyses showed significant difference for the three areas ($p < 0.05$) for SPC. Meanwhile significant differences were observed in TC, FC and EC counts between Kuala Juru with Kuala Sepetang and Kuala Sg. Jarum Mas ($p < 0.05$). *Vibrio parahaemolyticus* was present in samples from all locations examined, whereas *cholerae* was only detected in cockles from Kuala Juru in February. Presence of *Salmonella* in samples from Kuala Juru and Kuala Sepetang showed that it does not comply with the safety recommendations. The results from this study strongly recommend that cockles harvested in Kuala Juru and Kuala Sepetang to undergo decontamination before sale and eventual consumption.