

Effects of Environmental Parameters on Salmonella Contaminated in Harvested Oysters (*Crassostrea lugubris* and *Crassostrea belcheri*)

Authors : Varangkana Thaotumpitak, Jarukorn Sripradite, Saharuetai Jeamsripong

Abstract : Environmental contamination from wastewater discharges originated from anthropogenic activities introduces the accumulation of enteropathogenic bacteria in aquatic animals, especially in oysters, and in shellfish harvesting areas. The consumption of raw or partially cooked oysters can be a risk for seafood-borne diseases in human. This study aimed to evaluate the relationship between the presence of Salmonella in oyster meat samples, and environmental factors (ambient air temperature, relative humidity, gust wind speed, average wind speed, tidal condition, precipitation and season) by using the principal component analysis (PCA). One hundred and forty-four oyster meat samples were collected from four oyster harvesting areas in Phang Nga province, Thailand from March 2016 to February 2017. The prevalence of Salmonella of each site was ranged from 25.0-36.11% in oyster meat. The results of PCA showed that ambient air temperature, relative humidity, and precipitation were main factors correlated with Salmonella detection in these oysters. Positive relationship was observed between positive Salmonella in the oysters and relative humidity (PC1=0.413) and precipitation (PC1=0.607), while the negative association was found between ambient air temperature (PC1=0.338) and the presence of Salmonella in oyster samples. These results suggested that lower temperature and higher precipitation and higher relative humidity will possibly effect on Salmonella contamination of oyster meat. During the high risk period, harvesting of oysters should be prohibited to reduce pathogenic bacteria contamination and to minimize a hazard of humans from Salmonellosis.

Keywords : oyster, Phang Nga Bay, principal component analysis, Salmonella

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