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*PREVALENCE, ANTIBIOTIC-RESISTANCE AND GROWTH PROFILE OF VIBRIO SPP., ISOLATED
FROM IMPORTED SHELLFISH IN THE LOCAL MARKETS*

by

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Abstract

seafood related human illness caused by *Vibrio* species is a major problem. Seafood are prone contamination by pathogenic *Vibrio* bacteriae especially, *Vibrio mimicus*, *Vibrio parahaemolyticus*, and *Vibrio vulnificus*. The study on prevalence of these microorganisms in seafood of United Arab Emirates is vital due to the cultural background of the Emiratis as a coastal heritage. A study was conducted to assess the prevalence of *Vibrio* spp in imported shellfish from local markets, identify the *Vibrio* spp, examine the antimicrobial resistance and profile growth conditions of the isolated *Vibrio*. In the present study, 200 shellfish samples were collected from four different main markets at four cities (Al-Ain, Dubai, Fujairah and Abu Dhabi) in United Arab Emirates. *Vibrio* spp. were isolated from the collected samples and identified by the standard culture method. DNA was extracted from all the isolates and used for molecular characterization by Polymerase Chain Reaction (PCR). The antibiotic study was also performed to find out the resistance and sensitivity of the *Vibrio* species. The factors affecting growth rate and survival of the isolated *Vibrio* spp was studied by analyzing the effect of different parameters such as temperature, pH and salinity. Results showed that *V. parahaemolyticus* was predominant in the isolates. The presence of *Vibrio* spp was confirmed in 184 (92%) of the 200 isolates collected from different cities. The isolates from Al-Ain and Dubai showed an occurrence of 12.24% and 23.80% for *V. parahaemolyticus*. *V. mimicus* was not detected in isolates from Al-Ain and Dubai. *Vibrio* isolates from Fujairah showed an occurrence of 15.5% for *V. parahaemolyticus*, 11.11% for *V. mimicus*. The prevalence of *Vibrio* in isolates from Abu Dhabi was 6.25% for *V. parahaemolyticus* and 25% for *V. mimicus*. Antibiotic sensitivity of the isolates were evaluated by measuring the zone of inhibition against 6 common antimicrobial agents. *Vibrio parahaemolyticus* and *Vibrio mimicus* isolates were resistant to penicillin G, daptomycin, vancomycin, ampicillin and erythromycin while all the two *Vibrio* spp were susceptible to sulfamethoxazole-trimethoprim. The effect of various parameters such as temperature, pH and salinity on growth and survival of *Vibrio* isolates showed *Vibrio parahaemolyticus* and *Vibrio mimicus* isolates exhibited maximum growth rate at 37°C, while increasing the temperature to 47°C the growth percentage was decreased. The two *Vibrio* spp were grown significantly at alkaline pH (pH 5 and 7). Increasing the concentration of NaCl from 0.5% to 2%, the growth rate of *Vibrio* isolates were increased and optimum growth rate was showed in 1% NaCl. From the results, we can conclude that the *Vibrio* isolates in shellfish from different cities of UAE showed antibiotic resistance and it is a threat to public health as the antibiotic resistant determinacies transferred to other bacteria of the clinical significance.

Keywords: *Vibrio* spp., shellfish, antibiotic-resistance, growth profile, survival.