

## **TITLE: ISOLATION AND IDENTIFICATION OF *VIBRIO CHOLERA* FROM BALLAST WATER FROM DOCKED VESSELS IN THE ITAJAI HARBOUR**

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### **Abstract:**

Ballast water is utilized to ensure the safety and manoeuvrability of unload vessels. Nowadays, the ballast water discharge in fresh water, estuarine and salt water systems is considered the primary vector for the transport and release of non-indigenous species. Studies indicates that ballast water serves as a habitat for several species of microorganisms, thus representing a serious threat to public health. *Vibrio cholera* is a highly pathogenic bacteria that is transported via ballast water. The awareness around this specie results from the high number of deaths caused by cholera per year around the world (28 000 to 142 000) and for the number of countries reporting the presence of *V. cholerae* (47 countries, in 2013). Therefore, the present study aims to evaluate the presence of *Vibrio cholerae* in the ballast water of arriving vessels in two terminal ports in the Itajai harbour. Samples were collected on the ballast tanks through the manhole opening of 16 vessels and in laboratory, physical parameters (salinity and pH) were measured and microbiology analysis proceeded. Three techniques to detect *V. cholerae* were evaluated: enrichment followed by isolation; direct isolation with superficial inoculation; direct isolation with filtering membrane. From the 16 samples, three samples did not allowed the isolation of *Vibrio*. 61 microorganisms were isolated and the third method was the most efficient (74%) followed by the second (18.5%) and the first (7.4%) method. 27 isolates survived the subsequent cultivation and were characterized biochemically (AGS, T1N1 agar, T1N0 broth, T1N3 broth, Sodium deoxycolato, Lysine Iron agar and Muller Basal Medium). 2 isolates were similar to *V. cholera* biochemical patterns. Theses isolates will be analysed via 16S rRNA gene sequence to confirm their identity. This project evidences different techniques to detect *V. cholerae* in ballast water, thus preventing the dissemination of this pathogenic bacterial strain on the environment.

**Keywords:** *Vibrio cholerae*, ballast water, Itajai harbour

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