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Assessment of microbial and physiochemical quality of ballast water in commercial ships entering Bushehr port, along the Persian Gulf

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ABSTRACT

In the present study to evaluate ballast water impacts on coastal areas, samples were taken from commercial ships entering Bushehr port along the Persian Gulf. Standard methods were used for analyses of total and fecal *coliforms*, Pseudomonas, heterotrophic plate count (HPC), alkalinity, and hardness. Other parameters such as TOC, salinity, EC and TDS were also determined. The levels of TDS, EC, alkalinity, total hardness, salinity and TOC ranged from 3790–14510 mg/L, 5690–21760 µS/cm, 104–191 mg/L $CaCO_3$, 1160–8940 mg/L $CaCO_3$, 33.2–44.98 g/L and 1.9–5.7 mg/L respectively. Twenty-four, thirteen and four samples from 34 collected samples were positive in the case of total *coliforms*, fecal *coliforms* and *E. coli* respectively. All samples contained *Pseudomonas aeruginosa* and *HPC*. Our results showed that ballast water has the potential to change bacteria communities and also can be pathogenic for humans and coral reefs where ships discharge their ballast water.

Keywords: Ballast water; Bushehr; Commercial ships; Microbial quality; Persian Gulf

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