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TITLE: Ballast water: a review of the impact on the world public health

AUTHOR: ['C. K. Takahashi', 'Nggs Lourenco', 'T. F. Lopes', 'V. L. M. Rall', 'Christian Lopes']

ABSTRACT:

Since the nineteenth century ships have been using ballast water (BW) for safety, stability, propulsion and maneuverability, as well as to redress loss of fuel weight and water consumption, and to maintain structural stress at acceptable levels. Ballast water has been spreading many non-native species around the globe, but little is known about the extent and potential significance of ship-mediated transfer of microorganisms. The global movements of ballast water by ships create a long-distance dispersal mechanism for human pathogens that may be important in the worldwide distribution of microorganisms, as well as for the epidemiology of waterborne diseases. Only a few studies have been carried out on this subject, most of them involving ballast water containing crustacean larvae and phytoplankton. Specialized microbiological studies on these waters are necessary to avoid a repeat of what happened in 1991, when epidemic cholera was reported in Peru and rapidly spread through Latin America and Mexico. In July of 1992, Vibrio cholerae was found in the USA and the Food and Drug Administration (FDA) determined that it came from ballast water of ships whose last port of call was in South America. In Brazil, just a few studies about the subject have been performed. An exploratory study by the Brazilian National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária - ANVISA) found in ballast water different microorganisms, such as fecal coliforms, Escherichia coli, Enterococcus faecalis, Clostridium perfringens, coliphages, Vibrio cholerae O1 and Vibrio cholerae non-O1. Until now, Brazil has been focusing only on organisms transported to its territory from other countries by ballast water, to avoid their establishment and dissemination in Brazilian areas. Studies that can assess the probability that water ballast carries pathogenic microorganisms are extremely important, as is the examination of ships that arrive in the country. Treatment of the human infections caused by BW exists but none is completely safe and efficient.

SOURCE: ˜The œJournal of venomous animals and toxins including tropical diseases

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