

## Plankton Diversity In Ballast Waters At The Port Areas Of Tunisia

Romdhane Mohamed Salah <sup>(1)</sup>, Fathalli Afef <sup>(1,2)</sup>, Aouani Jaafar <sup>(3)</sup> and Ben Rejeb Jenhani Amel <sup>(1,4)</sup>

*(1) ERA/INAT-University of Carthage, 1082 Tunis, Tunisia*

*Telephone: +216 71287110 Email: ramadhanms@gmail.com*

*(2) Telephone: +216 71287110 Email: fathalli\_afef@yahoo.fr*

*(3) Sotinform/SERAH, 1082 Tunis, Tunisia*

*Telephone: 216 71787073 Email: sotinform@planet.tn*

*(4) Telephone: +216 71287110 Email: jenhani.amel@gmail.com*

Modern shipping can't operate without ballast water which provides stability to uncharged ships and thus presents opportunities for species to be transported to new environments. In this context, the Gulf of Gabes, (southern Tunisia) with four commercial ports, is regarded as being susceptible to species invasions due to its extensive human impact from shipping and eutrophication. The investigations carried out during the year 2009/2010 in the four port areas have achieved 19 commercial ships called at the port of Sfax, Skhira, Gabes and Zarzis. This study focused on the specific composition, status, abundance and viability of plankton in ballast water. For all ships, the qualitative analysis of samples was mainly marked by low diversity. Thus, a total of 61 taxa across five classes of phytoplankton were identified. The diatoms followed by Dinophyceae are the major groups. The abundance of phytoplankton varied between 0 and 27.6. 103 ind./L. The majority of species (54 taxa) found in ballast water have been reported in different regions and are assumed to be cosmopolitan. Among taxa inventoried, 8 species are potentially toxic including 3 diatoms and 5 Dinophyceae. The results of cell viability, measured by flow cytometry, reveals a viability rate equal or less than 1% for 85% of ships. Only the ballast water of 2 ships from Eastern Mediterranean waters, and 1 ship from Western Mediterranean waters, showed a significant viability between 50 and 60%. Furthermore, no significant correlation between the parameter residence time of water in the tanks and the percentage of cell viability was detected. Microfauna in the ballast water is very weakly represented. Among protozoa, two Spirotrichea and a Seisonida were identified. The presence of these microfauna, as indicated in bibliography as cosmopolitan distribution, have been reported in the ballast water of 15% of ships. No introduced species was detected. Keywords: Ballast waters, plankton, viability, port areas, Tunisia.