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Abstract

The Arabian Sea experiences moderate to weak upwelling along the south-west coast of India, which subsequently propagates towards the north. This causes variation in plankton community composition, which is addressed in the present study. Here we report the spatial variations in distribution of phytoplankton groups along the north-south transect in the eastern Arabian Sea based on marker pigments supported with flow-cytometric and microscopic analyses. 15 phytoplankton pigments were identified using High-performance liquid chromatography (HPLC) and the chemotaxonomic software (CHEMTAX) analysis associated these to seven major group of phytoplankton. The phytoplankton biomass, chlorophyll *a* (Chl *a*) was higher in southern stations with dominance of fucoxanthin whereas, divinyl chlorophyll *a* (divinyl Chl *a*), marker pigment of *Prochlorococcus* was present only in the northern region. Microscopic observation revealed the dominance of larger forms; diatoms (*Chaetoceros coarctatum* and *Nitzschia* sp.) and dinoflagellates (*Scrippsiella* sp., *Oxytoxum nanum* and *Oxytoxum* sp.) in the southern region. Furthermore, a study of plankton size distribution showed dominance of picoplankton (f_{pico}) followed by nanoplankton (f_{nano}) along the northern stations with comparatively higher microplankton (f_{micro}) in the south. This study clearly showed the influence of different environmental conditions on the phytoplankton community as reflected in dominance of diatoms in the southern (south of 12 °N) and that of picoplankton in the northern (north of 12 °N) region.

Keywords: Phytoplankton pigments, Picoplankton, CHEMTAX, Eastern Arabian Sea