Title:	Molecular tracers for characterization and distribution of organic matter in a freshwater lake system from the Lesser Himalaya
Authors:	Behera, Diptimayee (/jspui/browse?type=author&value=Behera%2C+Diptimayee) Bhattacharya, Sharmila (/jspui/browse?type=author&value=Bhattacharya%2C+Sharmila) Ambili, Anoop (/jspui/browse?type=author&value=Ambili%2C+Anoop)
Keywords:	Molecular tracers Lesser Himalaya
Issue Date:	2022
Publisher:	Springer Nature
Citation:	Biogeochemistry, 161(3), 315-334
Abstract:	The knowledge of distribution and sources of organic matter (OM) in aquatic systems is important to understand the biogeochemical cycling of carbon in terrestrial environments. In this study, we have evaluated quantitative contributions of OM sources and their distribution using bulk geochemical parameters (TOC and δ13Corg), n-alkane indices and source specific biomarkers (C20 highly branched isoprenoid (HBI)) in Renuka Lake in Lesser Himalaya. The principal sources of OM in the sediments were aquatic productivity with minor input from terrestrial plants, which varied from littoral to central part of the lake. The microbial community in Renuka Lake were established using short chain n-alkanes and C20 HBI, whereas pristane/phytane (Pr/Ph) depicts depositional condition of the lake system. The land use/land cover changes and grain size analysis were used to investigate the multiple reasons and processes that govern the spatial heterogeneity of the distribution of sedimentary OM. The results show that human activities and alterations of the aquatic landscape can significantly affect the composition and distribution of OM in aquatic systems. The present study shows that elucidating the sources and distribution of OM in an aquatic system is crucial for constraining the ecological status and aiding conservation measures.
Description:	Only IISERM authors are available in the record
URI:	https://doi.org/10.1007/s10533-022-00984-y (https://doi.org/10.1007/s10533-022-00984-y) http://hdl.handle.net/123456789/4779 (http://hdl.handle.net/123456789/4779)
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