

Occurrence of persistent organic pollutants at Alqueva's surface water at touristic spots.



Tuesday, May 9, 2023



3:00 PM - 3:20 PM



Hilton Toronto - Tom Thomson

Session: 39-1 - Recent Advances in Plastic Pollution in the Great Lakes to Inform Monitoring and Ecological Risk Assessment I

Theme: Threats to the Great Lakes

Program: Oral Sessions

Abstract

Freshwater pollution is a huge concern. A study aiming to evaluate water quality and occurrence of two groups of persistent environmental pollutants with similar chemical properties (polycyclic aromatic hydrocarbons-PAHs and microplastics -MPs) in Alqueva's surface water was performed during 2021. Samples were collected at three spots related to touristic activities (two beaches and one marina) once by season. In addition, we assessed and compared the presence of biofilms on plastic and natural materials. Water quality was acceptable with a low eutrophication level. PAHs concentration levels were lower than the standard limits established for surface waters. PAHs profiles showed significant differences when comparing the dry and rainy seasons, with a higher number of different compounds detected in Spring. Low molecular weight compounds, usually associated with the atmospheric deposition and petroleum contamination, were more prevalent. MPs were detected in all samples except one during Winter. Eight polymers were detected being polyethylene the most frequent. Plastics were more prone to biofilm colonization than natural materials. In addition, biofilms detected on plastics were more complex with higher microbial diversity and richer in EPS. Among microbiota were identified microorganisms previously linked to plastic and PAHs detoxification suggesting the need for further studies to evaluate the viability of using biofilms as part of a green bioremediation strategy to mitigate water pollution.

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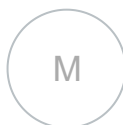
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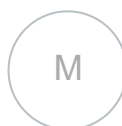
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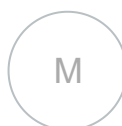
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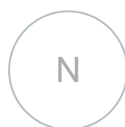
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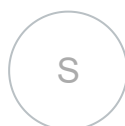
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