

## **Significance of the identification of Methylhopane biomarker hydrocarbons in the Holocene sediments. Case of the « Lac sud de Tunis »**

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Fourteen cores have been executed across the southern part of the lake of Tunis, to trace the physicochemical evolution of the sedimentary environment during Holocene. The quantitative and qualitative study of the total hydrocarbons and specially the saturated fraction (analyzed by GCMS) permit to identify the biomarker fingerprint at different depths of the lake.

The presence of 2 $\beta$ -Methylbacteriohopanepolyols (2-MeBHP) in Tunisian Lake sediments is very significant and is of particular interest, since Bacteriohopanepolyols with A-ring methyl substituents can be considered as cyanobacteria proxies known to originate from just a few specific taxa. The different spectra of the ion m/z 191 shows a similar distribution indicating an homogeneous source of organic matter deposited in the lagoon during the post-Holocene epoch. The calculation of the relative abundance of the fragment m/z 205 methylhopane and that of the ion m/z 191 for hopane  $\alpha\beta$  (2-MPHS index) confirms the bacterial origin of the lipid fraction which indicates a significant presence of cyanobacteria in the bacterial community.

This is a new result, identified for the first time in sediments from the lake of Tunis and can confirm that the environment was, during post-Holocene history, favorable to the proliferation of this bacteria family.

As regards the physico-chemical conditions that have prevailed within the depositional environment during Holocene, the variation of the 2-Methylhopane in sediment is interpreted as reflecting paleoenvironment variation and the installation of anoxic conditions.