

Multidisciplinary study of a mediterranean hypersaline pond (Laguna Honda, southern Spain)

M.L. QUIJANO¹, J.M. CASTRO¹, F. GUERRERO¹, G.A. DE GEA¹, A. GALOTTI¹, F. GARCIA², S. GARCIA-ZAFRA¹, F. JIMENEZ-GÓMEZ¹, R. JIMÉNEZ-MELERO¹, J. MARTINEZ³, J.A. MORALES⁴, L.M. NIETO¹, J. REY⁴, P.A. RUIZ-ORTIZ¹, L. RUIZ-VALENZUELA⁵, E.G. SAN MIGUEL⁴.

¹CEACTierra, Univ. Jaén, Spain.

²Dept. Stratigraphy and Paleontology, Univ. Granada

³Escuela Politécnica Superior de Linares, Univ. Jaén, Spain.

⁴Fac. Experimental Sciences, Univ. Huelva, Spain.

⁵Fac. Experimental Sciences, Univ. Jaén, Spain.

lquijano@ujaen.es, jmcastro@ujaen.es, fguerre@ujaen.es, gadegea@ujaen.es, agalotti@ujaen.es, fgarcia@ugr.es, fgomez@ujaen.es, rmelero@ujaen.es, jmartine@ujaen.es, jmorales@uhu.es, lmnieto@ujaen.es, jrey@ujaen.es, paruiz@ujaen.es, lvalenzu@ujaen.es, sanmiguel@uhu.es, sgz00002@ies.ujaen.es.

Mediterranean ponds are specially sensitive to environmental changes that can be recorded in their sedimentary infilling, although emersion episodes can hamper the stratigraphic continuity of the sedimentary succession. Here we present a multidisciplinary research comprising geochemistry, sedimentology, geophysical prospecting and aquatic ecology from the study of the sedimentary filling of an hypersaline shallow lake.

The Laguna Honda is located in southern Spain, at 460 meters above sea level in an endorheic area, under a semiarid climate. Geologically is located on triassic clays and marls, including evaporites, responsible for the hypersaline character of the lake. A total of 17 cores have been extracted and lithologically characterized, and two of them have been selected and sampled for geochemistry, lithological characterization, palinology and ecological analyses. The time-model is based on Pb-210 geochemistry, that points out to an age of the studied sediments younger than 54 years, with an average sedimentation rate > 5mm/year. The biomarker analysis has pointed out the dominance of *n*-alkanes, showing a temporal cyclic oscillation in the ratio between aquatic versus terrestrial plants. The SEM study has revealed the dominance of clays, with minor evaporites and organic debris. The palinology study has found a predominance of olive pollen. The cryptic biodiversity (zooplankton and ciliates) emerging from resting structures buried in the sediments for decades, show the strong resilience of these kind of ecosystems.

Acknowledgements: This work has been funded by CEACTION (University of Jaén).