

## MUDS AND SALTS FROM LAGUNA MAR CHIQUITA (OR MAR DE ANSENUZA), CÓRDOBA, ARGENTINA: NATURAL MATERIALS WITH THERAPEUTIC POTENTIAL USE

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The Laguna Mar Chiquita, located in Cordoba's province, Argentina, is the largest saline lake in South America, with a variable surface between 2,000 to 6,000 km<sup>2</sup>. Lake level fluctuations are associated to climate changes (dry or wet period) at middle latitudes in south eastern South America (Piovano et al, 2002, Troin et al, 2010). During the last 50' and 60' the mud collected from the bottom of the lake was extensively used for topical application over the skin and the salts precipitated in the coast were used for domiciliary baths. Subsequent water level increases (decades of the 70, 80, 90) diminish the possibility of using these materials. However, during the last decade the decline of water levels has increased the potential for reuse of muds and salt deposits of this lake. The aim of this study was to characterize the composition of the muds and salts obtained from this lake and its coast. Nine solid samples and one water sample from Laguna Mar Chiquita were collected around Miramar, the unique coastal town. The salinity of the water, 28 to 360 g/L like minimum and maximum reported, has reached in the last decades values as low as 33 g/L, with salt contents above 60 g/L at the present. The predominant dissolved anion was chloride while sodium was the most important cation. Sulphate was present in minor proportions in the water but it was the most important anion in the precipitated salts. The pH was neutral or slightly alkaline. XRD diagrams showed a predominance of sodium chloride in the water of the lake, while the entire coastline displayed predominant deposits of calcium carbonate and minerals like calcite, gibbsite, eugsterita and thenardite. The dominant composition of the mud, with possible therapeutic application, was a mixture of illite like predominant phyllosilicate, quartz, plagioclase, feldspar, muscovite, calcite and halite. The thermograms obtained from mud samples showed typical endothermic peaks associated to the inorganic materials and exothermic ones attributed to the presence of organic matter. Waters and muds from Laguna Mar Chiquita showed significant similarity to those from the Mar Menor, Murcia, Spain (Carretero et al, 2010), place in which widely promoted tourism is related to the use of muds with therapeutic purposes.

[1] Carretero M.I et al., Applied Clay Sci 48, 506–515, 2010.

[2] Piovano E. et al., Sedimentology, 49, 1371 – 1384, 2002.

[3] Troin M. et al. Journal of Hydrology 393 233–244, 2010.

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