

PETROLOGY AND PALEOGEOGRAPHICAL CONTEXT OF EVAPORITIC LACUSTRINE SYSTEMS. LOWER MIOCENE EBRO BASIN (NORTHWESTERN SECTOR). SPAIN.

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The Ebro Basin is situated NE of the Iberian Peninsula. It is a Tertiary Basin formed during the Alpine orogeny as foreland basin composed by three mountain ranges: Pyrenees, Iberian Range and Catalan Coastal Range, which, from the upper Eocene has been entirely dominated by continental sedimentation with development of alluvial fans and evaporitic and carbonated lacustrine systems.

During the lower Miocene, three evaporitic lacustrine systems isolated among them, are developed and are placed next to the South border of the basin in a interalluvial fans position.

The identified facies in such lacustrine deposits are made of gypsum-anhydrite and less frequently, carbonates that form intervals of 10-20 m. thick and are intercalated among alluvial deposits. Gypsum is primary microlenticular with a gypsilitic or gypsarenitic texture with a disoriented structure and exfoliation perpendicular to the crystal major axis. Carbonated or argillaceous matrix, appear forming strata from 1 to 2 m. thick and present a well developed bioturbation. Its pureness suggests that crystals have nucleated during the water-sediment interphase or properly at the bottom, of the lake inner sediment since they do not show any type of orientation or classification of grains, as it should be if generated by decantation at the bottom of the lake.

Early diagenetic processes provoked primary gypsum anhidritization in marginal areas of the lake, becoming secondary gypsum which is presented in massive micronodular and meganodular facies, and have a clear replacing origin, even though, there are disperse micronodular gypsums among lutitic facies that are considered to be of primary origin by processes of evaporitic pumping. Among the gypsum facies, chert is frequently found and appears as nodules from a few centimeters to more than 1 m. and it presents different structural types: microcrystalline aggregate, equigranular mosaic, opaline zones and fibrous-radicate structure from 200-500 um. diametre.

Fig. 1 synthetizes the paleogeographical context in which the marginal lacustrine systems were placed, and their situation in relation to the central saline lake that was developing at the same time.

