

## **BASES AND CATION EXCHANGE CAPACITY IN PELOIDS MATURED WITH MINERAL WATERS FROM THE PROVINCE OF GRANADA (SPAIN)**

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The use of peloids in balneotherapy is a healing method that helps in the treatment of chronic diseases or elderly people, significantly improving their disease and reducing the doses needed in the administration of medications. The maturation of peloids is necessary to improve and stabilize its therapeutic properties. Maturation is a complex process that usually occurs between 60 days and 2 years, and that depends on solid and liquid phases. During this process, due to temperature, time, water content, pH, and homogenization, peloid becomes a mature final product. Many authors have studied this process and they conclude in changes on physical and chemical characteristics of thermal mud, increasing the volume of rehydration and improve its thermal properties. Furthermore, maturation generated metabolites of some colonizing organisms, which are considered responsible for its anti-inflammatory action. Our research group has studied the ultramicrofabric of peloids with scanning electron microscope to observe their development during the maturation process. The behavior of peloids as ionic mediators on human skin may be due to some of their physicochemical properties, such as exchange bases (calcium, magnesium, sodium and potassium) and cation exchange capacity. The aim of this work is to study the exchange bases and cation exchange capacity of peloids prepared with mineral water from different springs and spas of Granada (Alicún de las Torres, Zújar Graena, La Malahá and Lanjarón) and bidistilled water; the maturation time was one, three and six months. The solid phase was a mixture of kaolin-bentonite in proportion 9:1 (w:w). The value of cation exchange capacity increases in most of peloids with respect to the solid phase (not mixed with mineral water) and also increases with the maturation time. This fact would be related to the evolution of peloid fabric during the maturation process, which could increase the cation exchange positions on the clay sheets. With regard to the exchange bases, we have observed that their values are highly related to the mineral water used.

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