PREFORMULATIVE STUDY OF CLAYEY SAMPLES TO BE USED AS HEALTH CARE MATERIALS

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Medical geology is a multidisciplinary scientific field shared by specialists of distinct areas and scientific domains, dealing with the relationships between the geological environment and health in humans, animals and plants. Health effects of minerals may be negative (being responsible of health problems) or positive (being used in health care products). Within minerals, clay minerals, the essential constituents of clays, are frequently related to positive health effects because of their interaction with biological systems (1). Clays are effectively used in the treatment of several diseases (2). In particular, these mineral materials are currently used in drug delivery systems (3-4). They are also used in conventional medicines and cosmetics, once some specifications regarding safety and efficacy are complied by the natural material (5). Some specific pharmaceutical test must be fulfill by the candidate clay material before consider it as a pharmaceutical substance. These tests give information about the safety and technical properties of the material to be used in an specific function (for example, as active or inactive ingredient of a given formulation) and are a fundamental part of the preformulation studies (6-7). With these premises, two natural clayey samples from southern Spain and Southern Italy were studied to determine their suitability as pharmaceutical raw materials. Mineralogical and chemical studies were carried out and specific preformulative assays were also made, including powder micromeritics and flow, volumetric density, gel forming capacity and swelling. The measured properties allowed establishing the feasibility of the studied samples to be used in cosmetics or therapeutic formulations. When necessary, formulations should also include some other rheological additive and commercial clayey materials were proposed.

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