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Soil Materials and Health: An new experience for teaching

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Cationic clays are very extended compounds on the earth surface so they constitute the main component of soils and sedimentary rocks. Due to their presence and special properties that they have, mankind has used them with therapeutic aims from Prehistory, not being rare to find references to this subject in works of classic authors. During the Renaissance and with the appearance of the first Pharmacopeia, its use was regulated to a certain extent.

The scientific development reached during the XXth century has allowed to understand and to study the reasons of the useful and peculiar properties of clays, directly related to their colloidal size and crystalline structure. These properties are translated in a high specific surface area, optimal rheological properties and/or excellent sorptive capacity; everything makes cationic clays very useful for a wide range of applications. In the field of health, cationic clays are used in Pharmaceutical Technology and Dermopharmacy as ideal excipients and substances of suitable biological activity due to their chemical inertness and low or null toxicity for the patient (Carretero, 2002; Lopez Galindo et al., 2005; Choy et al., 2007; del Hoyo, 2007).

Cationic clays can be used in a wide range of applications in health. However, it must be also considered that the risk exposure to cationic clays may cause several diseases, as it has been seen above. Cationic clays have been used as excipients and active principles in the pharmaceutical industry. The last tendencies are their use in geomedicine, as much to come up as to treat diseases. One stands out his presence in spas and aesthetic medicine. Development of new pharmaceutical formulations is observed, based on cationic clays, for cancer therapy. It has to emphasize the importance in the synthesis of biosensors with cationic clays. Cationic clays can be considered a group of promising materials in the development of new health applications.

The study of the use of the cationic clays in the field of the health is a source to develop numerous studies of cases in the teaching of different subjects related to the geoscience and a new opportunity to connect the learning with the reality.

References

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