How mineralogy and geochemistry could explain some practices of the so-called folk medicine

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Mineralogy and geochemistry are fundamental tools to explain both, origin, properties and applications of geomaterials. The medicinal use of minerals goes back to Antiquity. The empirical knowledge of the natural factors determinative of human health, whose practice is called Empirical Medicine or Folk Medicine, is essential in many aspects of human life and activity.

Some special sands are worldwide used in therapeutic applications (psammotherapy), particularly for the treatment of muscular-skeletal diseases, under the form of sand-baths. Porto Santo is a relatively small Atlantic island that belongs to the Madeira archipelago where biogenic carbonate sands occurring both on beaches and dunes have been locally used, for many years, for the treatment of muscular-skeletal affections, such as rheumatoid arthritis, osteoporosis, and fibromyalgia, firstly outdoors under the form of sand-bathing in the dry sand of the transition zone from the beach to its adjacent frontal dune (where in sunny summer days the temperature reaches 65ºC), and lately indoors in specialized Geomedicine Clinics and other Health Resorts. The mineralogical and geochemical studies being carried out on this type of sand provided information that could explain the healing effects of sand-bathing in Porto Santo. The aforementioned sands are essentially constituted of bioclasts of calcareous algae and corals, calcite, Mg-calcite and aragonite being the mineral species identified in the bioclasts, and Ca, Mg, Sr being the main constituting chemical elements. Sand-bathing healing effects could be attributed to the action of two mechanisms, thermal and chemical.

Also, some special clays and natural sediments are worldwide used, either on natural state or after more or less sophisticated processing and maturation for therapeutic and skin care purposes, under the form of clay suspensions in the case of edible clays, or under the form of clay pastes and mud packs for topical applications in mud therapy and pelotherapy. The information provided from mineralogical and geochemical studies is fundamental too, not only to understand the specific properties of these geomaterials, but also the therapeutic and cosmetic effects, which could be also attributed to the action of two mechanisms, thermal and chemical. Presently there are sufficient medical advances and evidences concerned with the positive effects of clay/mud/peloid on human health that provide scientific credibility to their empirical use.

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