



Minerals and Human Health: Benefits and Risks

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Man and minerals are chemical systems having in common, in their composition, chemical elements which are essential both to life and to the formation of minerals. And, in the natural environment where man lives, both chemical elements and minerals are omnipresent. Therefore, interactions between man and chemical elements and minerals are expected to occur conditioning the living quality highly determined by the health state. These interactions can be classified as positive when they provide health benefits or negative when they are responsible for health risks, in both cases depending upon the dose/functional response.

The use of minerals for medicinal purposes is most probably as old as mankind.

This communication intends to disclose in a very synthetic way the actual knowledge about both positive and negative effects upon human health of *minerals s.l.* (*sensu latu*). The concept of *minerals s.l.* comprises the concepts of *minerals s.r.* (*sensu restrictu*), of *biominerals*, and of *chemical elements* present in the environment in a free state. The last are derived, either naturally from *minerals s.r.* following their chemical alteration, or artificially from anthropogenic sources.

The author of this abstract is co-author of a book that soon will be issued dealing with both benefits and risks of *minerals s.l.* upon human health. Intake of *minerals s.l.* can happen through ingestion, inhalation or absorption.

Clay/mud and clay minerals have been used by man since the prehistory, in order to improve his health state, through internal (orally) and external (topically) applications. In this last case, the preparation (maturation) of *peloids* for applications in *peloidtherapy* or *pelotherapy* is a complex but essential process.

Clay and mud relevant properties, the beneficiation of their natural properties, and the application methodologies are emphasized in the book.

The interactions with human body of clay minerals, special sands (biogenic carbonate sand and radioactive sand), mineralo-medicinal waters, and engineered mineral-based products interesting for complementary topical applications in balneotherapy are considered too.

Particular emphasis is given to the so-called mineral salts and trace minerals bioessential to life provided, either in diets, or in nutritional supplements. Diseases such as, silicosis, asbestosis, arsenicosis, fluorosis, hydrargyrosis, selenosis, and saturnism are considered and described in the text.