

P30. THOUGHTS ON THE TOXIC EFFECTS OF NATURAL GEOLOGICAL MATERIALS

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The sources as solid (rock, mineral), liquid (water, oil) and gaseous formed in the Earth are known as natural substances. Human beings are interaction with the Earth's layers (geosphere, biosphere, hydrosphere, and atmosphere) where they live in every day. This relationship is carried out by entering of the element and mineral resources to the body by way of eating, drinking, breathing and dermal absorption. Most of these sources are useful for the essential foods for human life, while some are harmful. In other words, many of these materials taken into the body in excessive amounts by inhalation, digestion and skin are harmful, even these may be toxic and/or deadly effects. These affects lead to carcinogenic, teratogenic and mutagenic changes by causing the disorders of digestive, respiratory, urinary, circulatory and nervous systems. Natural (volcanic eruptions, earthquakes, wind erosion in arid environments and marine / trans-oceanic transports) anthropogenic (mining and industrial activities) and cosmogenic dusts and aerosols spread into the atmosphere may cause toxic effects. Harmful solid (ash), liquid and gases (N-, C- and S-oxides, hydrocarbons, HF₂, HCl, H₂S) to health emerge by volcanic eruptions in natural processes. Some minerals such as chrysotile and/or amphibole (asbestosis), erionite (erionitosis), silica (silicosis), coal (black lung), native Fe and Fe-oxides (siderosis), talc (talkosis) and fluorite (fluorosis) during anthropogenic activities threaten the environmental health. Metals (Al, Cr, Fe, Co, Cu, Zn, Ag, Cd, Pt, Au, Hg, Pb, Bi), metalloid (As), non-metallic (SA), alkali (Li), alkaline-earth (Be, Mg, Ca, Sr, Ba, Ra), halogen (F, I) and radioactive elements / radionuclides (Th, U, K, Ra, Rn) related to the mineral compositions cause endemic diseases. As a consequence; human is in continuous interaction with natural materials with organic and inorganic origin in the living area. The main external causes of diseases are natural and artificial hazardous in habitats (soil, air, water) and also occupational exposures as well as pathogens increase dramatically in recent years. Therefore, the close relationship between geological processes and materials should care to maintain physical, mental, social, cultural and economic health of the society in the future.

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