

Geophagy (Soil Consumption) In the Volta Region of Ghana, Human Health Implications

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ABSTRACT

Geophagy, the deliberate consumption of soil by humans is a common practice amongst many ethnic groupings in Ghana, particularly the people of the Volta region. This investigation reports the essential and non-essential elements of geophagical materials collected from fifteen (15) study sites in the Volta region of Ghana. The findings indicated the potential for such soils to supplying both essential and non-essential elements to the geophagists. The levels of elements varied in each sample from source (where the raw material is obtained) to the market (final product) and their distribution had no pattern. The most abundant element among all the elements examined was calcium (Ca) which was present in elevated concentrations in almost all sampling locations. The levels of non-essential elements [mercury (Hg), arsenic (As) and lead (Pb)] were also very high in all the studied sites except sites 2, 6, 7, 9 and 13 where Pb was not detected from the source samples. Levels of the elements found in the biological tissues analysed indicated that the patrons of the clay were exposed. Survey via questionnaire also demonstrated that both sexes consumed these soils with women patronizing the most for various reasons in spite of the discomforts sometimes they experienced. Health risks estimates calculated based on consumption rate of twenty two (22) grams per day revealed that most elements were normal except for large doses of iron (Fe), nickel (Ni) and arsenic (As). However, the fear of long term ingestion of these soils could lead to bioaccumulation with its attending health effects of diseases.

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