

## Abstract

Geophagy is the purposeful or deliberate consumption of Earth and clay deposits by animals, including man. It is a special type of pica, which is defined as the craving and subsequent consumption of non-food substances. The geochemical and mineralogical composition of the geophagic materials consumed by pregnant women and sold in open air markets in Eastern, Nairobi and Nyanza provinces were studied. The mineralogical composition of selected soil samples was investigated using X-ray diffractometry (XRD). The XRD data showed that the soils in these areas consisted mainly quartz, and the clay mineral kaolinite. The preliminary elemental analysis was carried out using Energy dispersive x-ray fluorescence. The geophagic materials were subjected to standard digestion procedures and analyzed for Zn, Cu, Co, Pb and Cd by atomic absorption spectroscopy (AAS). Analysis results showed the geophagic materials contain elevated levels of Fe for a 2.5 g sample. The present study has shown that the geophagic materials from the three provinces open air markets consist mainly of silica and alumina. The levels of Pb exceeded the levels recommended by WHO/FAO limits of 0.01 ppm but the levels obtained for Cd in the samples from Nairobi exceed the WHO/FAO limits of 0.003 ppm