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Assessment of Mineral Content of Different Soil Types Consumed by Pregnant Women in Western Kenya

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Abstract

Soil consumption (geophagia) has been in practice for more than 2 million years, it has been reported in different cultures in different parts of the world. This practice has been shown to be prevalent in women especially pregnant women. Different soils are chosen because women crave their taste, smell or texture in the mouth and consume the soil to satisfy this craving. Pregnant women in Kenya have been reported to consume soils from different sources, this includes soil from the walls of the houses which is easily available and its taste is preferred. Soft stone is sold in the open air-market or in the high-end market as well as termite soil from termite mounds. Sometimes women collect soil from the ground after a shower, the rich smell of freshly watered soil, can bring on strong desire to crave and ingest it. Samples of soil from houses, termite molds and from the market were collected and analysed for mineral concentrations using inductively coupled plasma optical emission spectrometry (ICP-OES). The different soils were found to have different mineral content ranging from, calcium (0.29-2.69 mg g^{-1}), iron (23.61-96.76 mg g^{-1}), potassium (8.33–34.74 mg g^{-1}), magnesium (0.88-3.65 mg g^{-1}), manganese (0.35-3.34 mg g^{-1}), sodium (0.66-7.81 mg g^{-1}) and silicon (193.36-361.42 mg g^{-1}). There were significant differences observed in the mineral concentration in all the samples studied ($p < 0.05$). If a pregnant woman ingest 1 g of the studied soils, they were likely to meet 22 % to 91 % of the woman daily iron requirement. This study indicates the potential importance of ingested soils in supplying significant amounts of several minerals required during pregnancy. Whether this is a safe source for minerals lies the big question.

Keywords: Kenya, pica, pregnant women, soils

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