RESCON 2025 EES 11

GEOCHEMICAL AND MINERALOGICAL PROPERTIES OF GEOPHAGIC SOILS CONSUMED BY PURPLE-FACED LANGURS (*Semnopithecus vetulus*) IN THE KALUDIYAPOKUNA FOREST RESERVE, SRI LANKA

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Geophagy is the deliberate consumption of earth materials observed in many animals, possibly for nutritional supplements and self-medication. The purple-faced langur (*Semnopithecus vetulus*), a critically endangered colobine monkey, is endemic to Sri Lanka. The present study assessed the soil's self-medication and nutritional roles by comparing the texture, mineralogical, and geochemical characteristics of the geophagic and nongeophagic soils consumed by purple-faced langurs in the Kaludiyapokuna Forest Reserve (KFR), Sri Lanka. Such a study is crucial to furthering the understanding of their ecological requirements. Soil samples were taken from seven termite mounds utilised by langurs in the KFR. Non-geophagic soils from the same site were also collected as controls. The soil physical characteristics, including pH, electrical conductivity, major and trace elements (Na, K, Mg, P, Mn, Fe, Cu, and Zn), and soil organic matter content, were determined for both consumed and control samples using standard analytical techniques. Textural and mineralogical analyses were also carried out to identify their differences. Geochemical analysis showed no statistically significant difference between the consumed and control soils ($p \leq 0.05$). However, there was a significant difference in soil iron content ($p \leq 0.009$) and particle size distribution (sand; $p \leq 0.048$, silt; $p \leq 0.004$, clay; $p \leq 0.035$) between the consumed and control samples. Clay minerals, such as illite, montmorillonite and kaolinite, were identified in consumed soils. Based on these findings, supplementation of iron intake and/or self-medication appear to be the most likely explanation for geophagy in *Semnopithecus vetulus* in the KFR.

Keywords: Geophagy, Nutrient supplement, Purple-faced langur, *Semnopithecus vetulus*