

## Abstract

The aim of this study was to determine the quantities of essential and toxic elements in the natural licks consumed by livestock in Igambang'ombe Division in Tharaka-Nithi County, Kenya. Ten highly used licks, five moderately used licks and one abandoned lick were randomly selected. Mineral elements were determined using TXRF, atomic absorption and U-V visible spectrometry methods. Normal averaging and ratio scale were used to determine the differences in quantities of mineral elements in the licks and control. Results indicated that, Kimenyi lick had the highest quantities of calcium ( $44,445\pm 425$  mg/kg) and magnesium ( $26,640\pm 85$  mg/kg), whereas Kigwanga, Kibuuri and Kieroo licks showed higher levels of sodium ( $11,279\pm 35$  mg/kg), potassium ( $1,800\pm 12$  mg/kg) and phosphorus (67 mg/kg) than control respectively. Levels of iron ranged between  $15,252\pm 166$  to  $67,717\pm 351$  mg/kg. Among the toxic elements only vanadium in Riankui lick site was above the globally accepted median range and the rest were below. The study revealed that natural licks had higher levels of essential elements than control sample, and there was no lick that contained high levels of all the minerals than in other licks. Mineral supplementation could be the major reason why livestock consume natural licks in Igambang'ombe Division.