

Diabetes mellitus has experimentally been shown to be managed by medicinal plant extracts. Among the factors attributable to the hypoglycemic potential of the medicinal plants, are the trace elements present in them. This study was designed to determine the content of trace elements in five Kenyan antidiabetic medicinal plants traditionally used to manage diabetes mellitus using Energy Dispersive X-ray Fluorescence (EDXRF) and Atomic Absorption Spectroscopy (AAS) techniques. The elements Fe, Zn, Pb, Mg, Cr, Cu, Ni, Mn, Mo and Sr were identified and their contents estimated. The results of the present study provide justification for the usage of these medicinal plants in the treatment of diabetes mellitus since they are found to contain the elements Mg, Cr, Zn, Cu, Ni, Mn and, which play vital roles in blood glucose reduction, thereby aiding in management of diabetes mellitus. Our results show that the analyzed medicinal plants can be considered as potential sources for providing a reasonable amount of the required elements other than diet to the patients of diabetes mellitus. Moreover, these results can be used to set new standards for prescribing the dosage of the herbal drugs prepared from these plant materials.

**Keywords:** EDXRF, AAS, Diabetes mellitus, Trace elements, Medicinal plants