

Abstract

The aim of this study was to establish whether the invasive plant *Lantana camara* L. alters the soil chemical properties at Ol-Donyo Sabuk National Park. The key objective was to evaluate the soil nutrient composition in areas invaded by *L. camara* and how these differ from areas without *L. camara*. Five study sites were selected by purposeful sampling, out of the existing 10 blocks. Soil samples were collected randomly from *L. camara* invaded areas and similarly from adjacent areas free from *L. camara*. The soil samples were subjected to determination of the following nutrients and parameters: pH, potassium (K), calcium (Ca) magnesium (Mg), total nitrogen (N), phosphorus (P), total organic carbon (TOC), manganese (Mn), copper (Cu), iron (Fe), zinc (Zn) and sodium (Na). The data obtained was analysed using Two-way ANOVA test to determine difference in nutrients composition in *L. camara* invaded and non-invaded areas. Three-way ANOVA test was used to gauge the interactions between wet and dry season, invaded and non-invaded areas and study sites. A post-ANOVA test, Tukey's Honest Significant Difference was done to separate the means. The results from the study indicated *L. camara* invaded areas had a significant difference in pH, P, N, Mn, Fe and total organic C compared to the patches that had native plants and not invaded by *L. camara*. High pH also makes P to be more available to plants that is why P was high in the *L. camara* invaded areas. This study revealed that *L. camara* remarkably changes the concentration and balance of soil nutrients resulting to a change in chemistry of soil nutrients. This is in a bid to suit its survival to the detriment of the native plant species. This study is hence vital for designing an effective eradication and preventive strategy of *L. camara* in Ol-Donyo Sabuk National Park and other protected ecological habitats in Kenya.

Keywords: Invasive species, native species, soil nutrients, ecosystems, *Lantana camara* L.