ABSTRACT

Essential oils of eight plants, selected after an ethnobotanical survey conducted in Bukusu community in Bungoma County, western Kenya (Tagetes minuta, Tithonia diversifolia, Juniperus procera, Solanecio mannii, Senna didymobotrya, Lantana camara, Securidaca longepedunculata, and Hoslundia opposita), were initially screened (at two doses) for their repellence against brown ear tick, Rhipicephalus appendiculatus, using a dual-choice climbing assay. The oils of T. minuta and T. diversifolia were then selected for more detailed study. Dose-response evaluations of these oils showed that T. minuta oil was more repellent (RD50 = 0.0021 mg) than that of T. diversifolia (RD50 = 0.263 mg). Gas chromatography-linked mass spectrometric (GC-MS) analyses showed different compositions of the two oils. T. minuta oil is comprised mainly of cis-ocimene (43.78%), dihydrotagetone (16.71%), piperitenone (10.15%), trans-tagetone (8.67%), 3,9-epoxy-p-mentha-1,8(10)diene (6.47%), β -ocimene (3.25%), and cis-tagetone (1.95%), whereas T. diversifolia oil is comprised mainly of α -pinene (63.64%), β -pinene (15.00%), isocaryophyllene (7.62%), nerolidol (3.70%), 1-tridecanol (1.75%), limonene (1.52%), and sabinene (1.00%). The results provide scientific rationale for traditional use of raw products of these plants in controlling livestock ticks by the Bukusu community and lay down some groundwork for exploiting partially refined products such as essential oils of these plants in protecting cattle against infestations with R. appendiculatus.