

Abstract

Previously, essential oil of *Conyza newii* (Asterales: Asteraceae, Oliv. & Hiern) growing in the northern part of West Pokot (35°E, 1°N) of Kenya was shown to be highly repellent [$RD_{50} = 8.9 \times 10^{-5}$ mg/cm², 95% confidence interval (CL)] to *Anopheles gambiae* s.s. Fumigant toxicity of the oil to the mosquito was also demonstrated. The major constituents of the oil were found to be monoterpenoids, including (S)-(-)-perillyl alcohol, (S)-(-)-perillaldehyde, geraniol, (R)-(+)-limonene, trans- β -ocimene and 1,8-cineol. In this study, the chemical composition and repellency of essential oils of the plant seedlings collected from West Pokot (35°E, 1°N) and propagated in seven different geographical regions of Kenya [West Pokot (35°E, 1°N), Kilome (37°E, 1°S), Naivasha (36°E, 0°), Webuye (34°E, 1°N), Nyakach (34°E, 0°), Kericho (35°E, 0°) and Nairobi (36°E, 1°S)] were compared. There were significant variations ($P < 0.01$, 95% CL) in the relative proportions of the six constituents and this was reflected in the repellency of the essential oils ($P < 0.01$, 95% CL). Higher repellency of the oil was associated with greater proportions of (S)-(-) perillyl alcohol, (S)-(-)-perillaldehyde and geraniol, and lower repellency was associated with an increased proportion of (R)-(+)-limonene. The results suggest significant epigenetic (chemotypic) variations in the repellency and composition of *C. newii* essential oils growing in different regions of Kenya.