Abstract

Varroa -specific hygienic behavior is a hereditary trait of honey bee (Apis mellifera), which supports resistance to Varroa destructor. This study investigated the response of Apis mellifera scutellata to Varroa -infested worker brood cells in Kenya, East Africa. Uncapping, removal of the brood, and disappearance of the introduced mite were recorded in a total of 690 cells into which live mites were introduced. We recorded a high proportion of untouched cells in controls (median, 80%) compared to manipulated cells in which mites had been introduced (median, 12.5%) with a significant difference (GLMM, $p < 0.001$). Mites were removed and cells were recapped in about 26% of the artificially infested brood cells. When ten, eight, and five mites were singly introduced in closely neighboring brood cells, hygienic bees were more responsive in the high mite density regime of eight and ten mites, an indication of a possibility that chemicals play a role in identification of Varroa -infested brood cells.