

Repellency of Fennel Oil-Derived Products to Mosquitoes (Diptera: Culicidae) under Laboratory and Field Conditions

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The repellency of fennel oil containing products (5% aerosol and 8% cream) against mosquitoes was compared with those of citronella oil, fennel oil, geranium oil, and deet, as well as the commercial repellents, Baby KeeperR cream containing IR3535, MeiMeiR cream containing citronella and geranium oils, and Repellan SR aerosol containing 19% *N,N*-diethyl-*m*-toluamide (deet) under laboratory and field conditions. In laboratory tests (release-in-cage, patch, and skin), repellency of fennel oil was similar to those of citronella and geranium oils. In paddy field tests with five human volunteers, 5% and 8% fennel oil containing aerosol and cream produced 84% and 70% repellency 90 min after exposure, respectively, whereas MeiMeiR cream and Baby KeeperR cream gave 57% and 71% repellency at 90 min, respectively. Repellan SR aerosol gave 89% repellency at 180 min. The species and ratio of mosquitoes collected were the genera *Culex* (44.1%), *Anopheles* (42.2%), *Aedes* (7.8%), and *Armigeres* (5.9%). Fennel oil-derived products could be useful for protection from humans and domestic animals from vector-borne diseases and nuisance caused by mosquitoes.