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INGREDIENTS IN VICTORIA'S SECRET BOMBSHELL AND IVANKA TRUMP EAUX DE PARFUMS THAT REPEL MOSQUITOES: ANOTHER EVIDENCE SUPPORTING THE HYPOTHESIS THAT DEET MIMICS PLANT DEFENSE COMPOUNDS

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Mosquitoes are well known for sucking vertebrate blood and transmitting disease-causing agents, such as malaria, dengue, yellow fever, chikungunya, Zika, just to cite a few. However, they do visit plants given that nectar is their source of energy for flight. Insect repellents are the first line of defense against vector-borne diseases and thus important prophylactic tools for travelers to and populations leaving in endemic areas or regions experiencing outbreaks, such as the ones occurring in Brazil. Synthesized more than six decades ago, DEET is the most widely used insect repellent. Since it is not a natural compound its function remains a mystery in chemical ecology. We hypothesized that DEET mimics plant defense compounds given our discovery that methyl jasmonate is also repellent and activates a previously identified DEET-sensitive odorant receptor, CquiOR136. Various plant-derived compounds are used in a plethora of commercial formulations to repel mosquitoes. Plant-derived compounds are also used as fragrances. We analysed Bombshell[®] and identified the two constituents eliciting a previously reported “off- label” repellence activity, namely, methyl dihydrojasmonate and lilial. These compounds were also major constituents of Ivanka Trump eau de parfum. Both methyl dihydrojasmonate and lilial activated CquiOR136 and demonstrated strong repellence against the southern house mosquito, *Culex quinquefasciatus*, in laboratory assays. In this presentation I will discuss how these findings support our hypothesis that DEET mimics plant defense compounds.

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