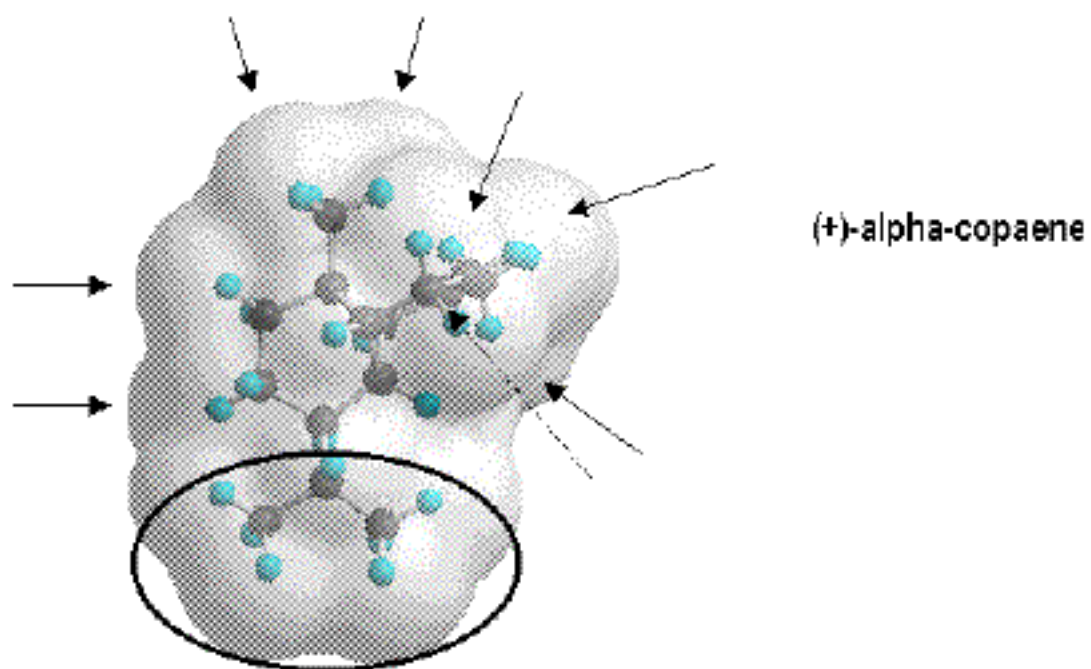
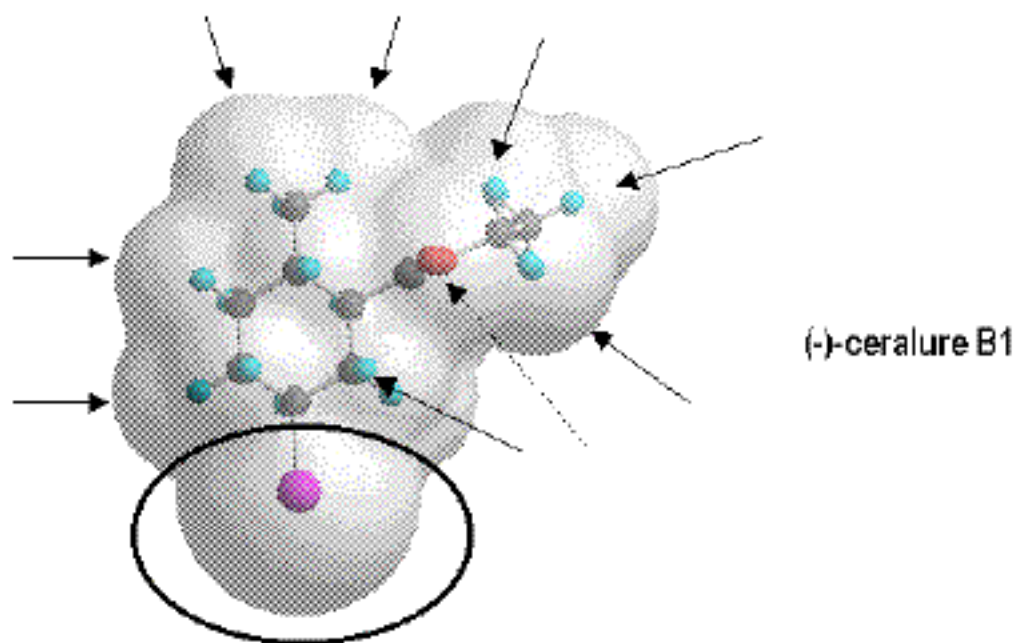


SAR OF MALE MEDFLY ATTRACTANTS

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Male medflies (*Ceratitis capitata*) are strongly attracted to different compounds, not described as medfly pheromones. The best attractants reported up to the date are (+)-copaene, a sesquiterpene of natural origin, and (-)-ceralure-B1, a non-natural iodinated cyclohexane ester. Although their origin, atomic composition, chemical and physical properties are rather different they show similar attraction to medflies. Why these compounds, so different to each other, act behaviorally in the same way, has been never addressed in research papers. We show here, for the first time, that these compounds have comparable hydrophobic surfaces and steric properties, thus suggesting that the odorant receptors may be very similar, or even the same, for both molecules. Also, we have quantitatively measured the geometric resemblance of both molecules when energy minimized in the gas phase. When seven carbons, one oxygen and one iodine (-)-Ceralure-B1 atoms are selectively chosen and are overlaid with nine sterically corresponding carbons of (+)-copaene, the RMS was 0.364 Å. A Twelve hydrogen atoms overlay resulted in a RMS of 0.957 Å. This represents a high degree of steric similarity. Thus, we hypothesize that the hydrophobic surface and molecular shape is essential for medfly odor recognition. This hypothesis could be valid to other living species since protein expression of odorant-related genes are similar in a wide array of organisms.



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