

Flight and Molecular Modeling Study on the Response of Codling Moth, *Cydia pomonella* (Lepidoptera: Tortricidae) to (*E,E*)-8,10-Dodecadien-1-ol and Its Geometrical Isomers

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In a previous study we have reported that both (*E,Z*)-8,10-dodecadienol (*E,Z*) and (*Z,Z*)-8,10-dodecadienol (*Z,Z*) isomers inhibit the attraction of male codling moth, *Cydia pomonella* L. when added to (*E,E*)-8,10-dodecadienol (*E,E*) while the (*Z,E*)-8,10-dodecadienol (*Z,E*) isomer induces slight increase in the number of males attracted to the pheromone source. In the present study, we have tested the behavioral activity of the individual geometrical isomers *E,Z*; *Z,E* and *Z,Z*. A few number of codling moth males flew to the *Z,E*-isomer while the other two isomers (i.e. *E,Z* and *Z,Z*) did not elicit any upwind orientation. Analysis of the flight behavior to the *E,E*- and *Z,E*-isomer showed significant differences in most of the flight parameters evaluated. Based on the biological observations and molecular modeling, we suggest that the behavioral activity of the *Z,E*-isomer is due to presence of specific receptors for this isomer on male antennae and not to its structural resemblance to the *E,E*-isomer. These results underline the importance of the *Z,E*-isomer in sex attraction of male codling moth.