



TWO ODOURS TO PROTECT OUR ORCHARDS: A REVOLUTIONARY STRATEGY TO CONTROL INSECT PESTS

Drosophila suzukii is a small but fearsome fly that attacks red fruits in their early stages of development (strawberries, raspberries, blackberries, cherries). Unfortunately, it is difficult to control this invasive species efficiently. The only effective insecticide is extremely toxic and its exceptional use is subject to exemption.

About ten years ago, researchers from the CSGA showed that two odorous molecules stimulated *Drosophila melanogaster*¹ courtship, a relative of *D. suzukii*. Based on this work, the researchers have looked for an anti-aphrodisiac that could protect orchards... and they have found it!

They have identified two volatile fatty acids, propanoic acid and butyric acid, which could drastically inhibit courtship and copulation of our two "cousins", *melanogaster* and *suzukii*. These two fatty acids, resulting from the degradation of food products by bacteria are non-toxic molecules. The effect is proportional to the concentration of the odorants: the higher the concentration is, the less the flies court and copulate. At the highest concentrations, the odours even induce a spectacular transient anaesthesia of the insects². This work enabled researchers to develop Drosomous, an effective anaphrodisiac to protect crops from harmful insects while respecting biodiversity and the environment.

Field trials have shown very encouraging results in protecting crops. Drosomous is a promising strategy in the biological fight to preserve our small fruits. As an added bonus, these two odours also reduce social interactions of other insect pests, notably the olive fly (*Bactrocera olea*) and the Mediterranean fly (*Ceratitis capitata*).



An exclusive operating licence for Drosomous has just been granted to the company Cearitis.

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To know more

¹ Grosjean Y *et al.* (2011). An olfactory receptor for food-derived odours promotes male courtship in Drosophila. Nature, 478, 236-40.

² Berthelot-Grosjean M *et al.* (2021). Drosomous: repellent composition and uses. PCT/EP2020/075386, WO 2021/048305.

Key-words

Insect pests; crops; smell; biocontrol; Drosophila