



## Pest insect olfaction in an insecticide-contaminated environment: info-disruption or hormesis effect

Submitted by Emmanuel Lemoine on Thu, 02/05/2015 - 14:29

Titre	Pest insect olfaction in an insecticide-contaminated environment: info-disruption or hormesis effect
Type de publication	Article de revue
Auteur	Tricoire-Leignel, H�el�ene [1], Thany, Steeve Herv�e [2], Gadenne, Christophe [3], Anton, Sylvia [4]
Editeur	Frontiers
Type	Article scientifique dans une revue � comit� de lecture
Ann�e	2012
Langue	Anglais
Date	2012
Volume	3
Section	Art.58
Titre de la revue	Frontiers in physiology
ISSN	1664-042X

### R sum  en anglais

Most animals, including pest insects, live in an "odor world" and depend strongly on chemical stimuli to get information on their biotic and abiotic environment. Although integrated pest management strategies including the use of insect growth regulators (IGRs) are increasingly developed, most insect pest treatments rely on neurotoxic chemicals. These molecules are known to disrupt synaptic transmission, affecting therefore sensory systems. The wide-spread use of neurotoxic insecticides and the growing use of IGRs result in residual accumulation of low concentrations in the environment. These insecticide residues could act as an "info-disruptor" by modifying the chemical communication system, and therefore decrease chances of reproduction in target insects. However, residues can also induce a non-expected hormesis effect by enhancing reproduction abilities. Low insecticide doses might thus induce adaptive processes in the olfactory pathway of target insects, favoring the development of resistance. The effect of sublethal doses of insecticides has mainly been studied in beneficial insects such as honeybees. We review here what is known on the effects of sublethal doses of insecticides on the olfactory system of insect pests.

URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua7564">http://okina.univ-angers.fr/publications/ua7564</a> [5]
DOI	10.3389/fphys.2012.00058 [6]
Lien vers le document	<a href="http://dx.doi.org/10.3389/fphys.2012.00058">http://dx.doi.org/10.3389/fphys.2012.00058</a> [6]
Titre abr�g�	Front Physiol

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### Liens

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- [5] <http://okina.univ-angers.fr/publications/ua7564>
- [6] <http://dx.doi.org/10.3389/fphys.2012.00058>

Publié sur *Okina* (<http://okina.univ-angers.fr>)