

PhD position: Influence of pesticide/virus interaction on honey bee health

Honey bee populations are currently experiencing serious losses in many places around the world, which is a fundamental issue regarding the maintenance and the biodiversity of natural and agricultural ecosystems. To better understand the factors contributing to this decline, the combined effects of pesticide exposures and viral infection will be evaluated under different experimental conditions (laboratory and field conditions). Different classes of pesticides having shown sublethal effects will be tested in combination with 2-3 viruses commonly found in bees.

These viruses, isolated from field samples or prepared from infectious clones, will be administered to bees exposed or not to pesticides and effects on the behavior and mortality will be measured and correlated with the kinetics of virus loads. Similarly immune/physiological responses will be evaluated in bees. This work will be done by using different molecular, physiological and behavioral approaches.

The thesis will be completed within the framework of a joint program between ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail) and INRA (Institut National de la Recherche Agronomique). The candidate will share its time in the Unit Honeybee Pathology (ANSES Sophia-Antipolis, France) and in the Unit Abeilles & Environnement (INRA Avignon, France).

Fundings

The PhD student will be funded for 3 years via a joint program between INRA and ANSES.

Doctoral school

Université d'Avignon et des Pays de Vaucluse, École Doctorale 536 «Sciences et Agrosociétés»

Candidate profile

We are looking for a candidate with a Master's degree in Biology and a strong background in insect physiology and virology. Good competency in molecular biology and English will be greatly appreciated.

The candidate should not have known allergies to bee stings.

Supervisors

INRA : Y. Le Conte (DR1), A. Dalmon (IR2) et C. Alaux (CR2)

ANSES : R. Thiéry (DR1), M. Chabert-Ribière (IR1)

How to apply

The application should include a detailed CV and a one-page cover letter. Two reference letters will be appreciated but not a requirement. The documents should be sent by email to anne.dalmon@paca.inra.fr and magali.chabert@anses.fr before the 14th September 2014. Selected candidates will then be interviewed. PhD start is expected in November 2014.

Contacts :

Anne DALMON
Institut National de la Recherche Agronomique (INRA)
Centre de recherche Provence-Alpes-Côte d'Azur
UR 406 Abeilles et environnement
Site Agroparc - Domaine St Paul
228, Route de l'aérodrome CS40509
84914 Avignon Cedex 9
Tél. : +33 (0)4 32 72 26 27
Fax : +33 (0)4 32 72 26 02
anne.dalmon@paca.inra.fr

Magali CHABERT RIBIERE
Laboratoire Anses de Sophia Antipolis
Unité Pathologie de l'abeille
Les Templiers - 105 route des Chappes
BP 111 - 06902 Sophia Antipolis Cedex
Tel : +33 (0)4 92 94 37 26
Fax : +33 (0)4 92 94 37 01
magali.chabert@anses.fr

References of teams on this topic :

- Alaux, C., J. L. Brunet, C. Dussaubat, F. Mondet, S. Tchamitchan, M. Cousin, J. Brillard, A. Baldy, L. P. Belzunces and Y. Le Conte (2010). "Interactions between Nosema microspores and a neonicotinoid weaken honeybees (*Apis mellifera*)." *Environmental Microbiology* 12(3): 774-782.
- Blanchard, P., J. Regnault, F. Schurr, E. Dubois and M. Ribiere (2012). "Intra-laboratory validation of chronic bee paralysis virus quantitation using an accredited standardised real-time quantitative RT-PCR method." *Journal of Virological Methods* 180(1/2): 26-31.
- Chevin, A., F. Schurr, P. Blanchard, R. Thiery and M. Ribiere (2012). "Experimental infection of the honeybee (*Apis mellifera* L.) with the chronic bee paralysis virus (CBPV): infectivity of naked CBPV RNAs." *Virus Research* 167(2): 173-178.
- McDonnell, C. M., C. Alaux, H. Parrinello, J. P. Desvignes, D. Crauser, E. Durbesson, D. Beslay and Y. Le Conte (2013). "Ecto- and endoparasite induce similar chemical and brain neurogenomic responses in the honey bee (*Apis mellifera*)." *Bmc Ecology* 13.