

Yves Le Conte

Research Director at the I.N.R.A. (Institut National de la Recherche Agronomique) and Head of the INRA Research Unit UR 406 ABEILLES ET ENVIRONNEMENT, in Avignon, France.



Key research and expertise

Since 1983, my research focuses on the biology and chemical ecology of honey bee colonies. With my team and collaborators, we have discovered a few pheromones from the brood and the adult bees that are at the center of social regulations in the honey bee colony. Those are primer and releaser pheromones. The primer effect had been studied at the molecular and physiological level. *Varroa destructor* is a serious threat of the honey bee in Europe and I am also very much involved in research dealing with host parasite relationships and also applied research to control the mite. Since the recent honey bee losses in Europe, I focus on studying the effects of different pathogens and parasites on bee health and the interactions with pesticides to understand honey bee decline from the molecular and socio-genomic level to colony level. I am also beekeeper since I was 12 years old.

Focus on Y. Le Conte's publications

- Le Conte Y, de Vaublanc G, Crauser D, Jeanne F, Rousselle J-C, Bécard J-M., 2007 -. Honey bee colonies that have survived *Varroa destructor*. *Apidologie*, 38:1–7.
- Le Conte, Y. and Navajas, M. 2008. Climate change: impact on honey bee populations and disease. In Climate change: impact on the epidemiology and control of animal diseases. *Rev. sci. tech. Off. int. Epiz.*, 2008, 27 (2) : 499-510
- Alaux C., Brunet, J.-L., Dussaubat, C., Mondet, F., Tchamitchan, S., Cousin, M., Brillard, J., Baldy, A., Belzunces, L.P., Le Conte, Y. 2010 - Interactions between *Nosema* microspores and a neonicotinoid weaken honeybees (*Apis mellifera*), *Environ. Microbiol.* 12(3), 774-782. doi:10.1111/j.1462-2920.2009.02123.x
- Le Conte Y., Ellis M., Ritter W. 2010 - *Varroa* mites and honey bee health: can *Varroa* explain part of the colony losses? *Apidologie*, 41(3): 353-363. DOI: 10.1051/apido/2010017.
- Dussaubat C., MAISONNASSE A., Alaux C., Tchamitchan S., Brunet J.-L., PLETTNER E., Belzunces L.P., Le Conte Y. 2010 – *Nosema* spp. Infection Alters Pheromone Production in Honey Bees (*Apis mellifera*). *J Chem Ecol*, 36 : 522-525. DOI 10.1007/s10886-010-9786-2.
- Alaux C., Folschweiller M., McDonnell C., Beslay D., Cousin M., Dussaubat C., Brunet J.-L., Le Conte Y. 2011 - Pathological effects of the microsporidia *Nosema ceranae* on honey bee queen physiology (*Apis mellifera*). *Journal of Invertebrate Pathology*. doi:10.1016/j.jip.2010.12.005.
- Le Conte Y., Alaux C., Martin J-F., Harbo J. R., Harris J. W., Dantec C., Séverac D., Cros-Arteil S. and M. Navajas 2011 - Social immunity in honeybees (*Apis mellifera*): transcriptome analysis of varroa-hygienic behaviour. *Insect Molecular Biology*, 20(3), 399-408. DOI: 10.1111/j.1365-2583.2011.01074.x.
- Alaux C., Dantec C., Parrinello H., Le Conte Y. 2011 - Nutrigenomics in honey bees: Digital gene expression analysis of pollen's nutritive effects on healthy and varroa-parasitized bees. *BMC Genomics* 2011, 12:496doi:10.1186/1471-2164-12-496.
- Dussaubat C., Maisonnasse A., Crauser D., Beslay D., Costagliola G., Soubeyrand, S., Kretzchmar, A., Le Conte, Y. (2013) Flight behavior and pheromone changes associated to *Nosema ceranae* infection of honey bee workers (*Apis mellifera*) in field conditions. *Journal of Invertebrate Pathology* 113: 42-51. DOI : /10.1016/j.jip.2013.01.002

McDonnell CM, Alaux C, Parrinello H, Desvignes JP, Crauser D, Durbesson E, Beslay D, Le Conte Y: Ecto- and endoparasite induce similar chemical and brain neurogenomic responses in the honey bee (*Apis mellifera*). *BMC Ecol* 2013, 13. DOI: 10.1186/1472-6785-13-25.

Le Conte Y, Huang ZY, Roux M, Zeng ZJ, Christides J-P, Bagnères A-G. (2015) *Varroa destructor* changes its cuticular hydrocarbons to mimic new hosts. *Biol. Lett.* 11: 20150233.

Mondet F., Alaux C., Severac D., Rohmer M., Mercier A.R., Le Conte Y. (2015) Antennae hold a key to *Varroa*-sensitive hygiene behaviour in honey bees. *Scientific Reports*, doi:10.1038/srep10454.

Nazzi F. & Le Conte Y. Ecology of *Varroa destructor*, the major parasite of the western honeybee *Apis mellifera*. *Annual Review of Entomology* (accepted for publication for the volume of 2016).

Dussaubat C, Maisonnasse A, Crauser D, Tchamitchian S, Bonnet M, Cousin M, Kretzschmar A, Brunet J-L & Le Conte Y. 2016 Combined neonicotinoid pesticide and parasite stress alter honeybee queens' physiology and survival. *Scientific Reports* 6: 31430. doi:10.1038/srep31430.