



Marie-Jeanne Holveck is currently a postdoctoral researcher/ at INRA-PACA hosted at UMR AMAP, Montpellier, France. She is working on behavioural, sensory and evolutionary ecology. Corentin Dupont is a PhD student from Montpellier University at UMR-AMAP, working on evolutionary ecology of plant-insect interactions. Laurence Gaume is a CNRS researcher at UMR-AMAP working on evolutionary ecology of carnivorous plants. The three of them are currently interested in controlling the Asian hornet, an invasive and honeybee-predatory species using chemical and behavioural ecology, electrophysiology and participatory science.

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## **Drawing inspiration from plants to trap the Asian hornet: Results and perspectives from a 3-years study**

*presented by*

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### **ABSTRACT**

As a result of increased trades and climate change, the Asian hornet, *Vespa velutina*, is an invasive alien species, which rapidly spreads in Europe. It jeopardizes honeybee populations, *Apis mellifera*, and their pollination services, thereby threatening agriculture, plant biodiversity and food safety. However, eradication campaigns are inefficient and harmful to biodiversity, calling for the development of traps with a selective bait. While no pheromonal trap has yet emerged from insect-based research, we investigated the relevancy of drawing inspiration from flowering plants. In particular, and in collaboration with academic partners, a plant grower and beekeepers, we measured the capture efficiency of four species of *Sarracenia* carnivorous plants, observed to naturally trap the hornet. We then identified their visual and olfactory cues, quantified their attractiveness towards the hornet and identified the volatile organic compounds of their odour bouquet, which trigger electrophysiological responses of hornets but not bees. Following promising results for the development of a selective and ecologically-friendly trap, we will also present future directions for the project.

### **KEY WORDS**

Invasive alien species, biomimetic trap, hornet, carnivorous plant, odour cue

### **Invited by:**

Dr. Thierry Fourcaud

### **Type:**

Research results

### **Oral language:**

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