

## **Master Thesis Project**

### **Gammafly: Search of semiochemicals from plants and symbiotic microbes**

**Background:** Phytophagous insects often use volatile compounds to locate their hosts and sex pheromones to recognize their mates. The gamma fly, *Autographa gamma* (Lepidoptera: Noctuidae), is a polyphagous insect pest on sugar beets in Scania. Insecticide-based control is currently the only efficient means of managing the pest, and development of a new integrated pest management control method is needed for sustainable agriculture.

**Project Description:** Within this project, we aim to examine semiochemicals from plants and symbiotic microbes in order to develop an effective bait attracting adult *A. gamma*. Ability to smell (olfaction) in these insects plays a major role in host localization and we therefore plan to investigate the olfactory system in the gamma fly and study the molecular basis of olfaction.

**Requirements:** Self-driven motivation in basic research and willingness to contribute to the project.

#### **Techniques involved in the project:**

1. Behavioral assays with caterpillar and adult moths.
2. Electrophysiology: GC-EAD on adult antenna.
3. GC-MS: Analytical method to identify chemicals based on mass spectrometry).
4. Molecular biology: DNA extraction from insects and microbes, performing PCR, microbial culture handling.

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#### Useful links:

GC-EAD: [http://www.ockenfels-syntech.com/wp-content/uploads/EAGpract\\_man\\_fin](http://www.ockenfels-syntech.com/wp-content/uploads/EAGpract_man_fin)

GC-MS: [https://en.wikipedia.org/wiki/Gas\\_chromatography%E2%80%93mass\\_spectrometry](https://en.wikipedia.org/wiki/Gas_chromatography%E2%80%93mass_spectrometry)

PCR: [https://en.wikipedia.org/wiki/Polymerase\\_chain\\_reaction](https://en.wikipedia.org/wiki/Polymerase_chain_reaction)