

### **Description for the general public**

Due to its enormous numbers, reproduction and rapid development, insects interfere very much in human life. The world of insects and humans constantly intertwine where both the one and the other have a significant impact on each other. Insects bring forth both significant benefits and harm to human. The positive role can be distinguished certainly bees, which are the main pollinators of flowers, however most have their enemies in the form of larvae *Galleria mellonella*. Another insect pest is *Tenebrio molitor*, which causes losses in the storages of feed. The negative effects caused by insects may relate to the man himself, but also to the entire economy.

Therefore, the aim of the project is identification of volatile compounds produced by *Tenebrio molitor* and *Galleria mellonella*. Another object is to check how entomopathogenic fungus *Metarhizium flavoviride* and *Bauveria bassiana* affect the composition of these compounds. For this purpose it will be necessary the optimization of headspace microextraction (HS-SPME headspace solid-phase microextraction) and the conditions for analysis by gas chromatography coupled with mass spectrometry (GC/MS). Differences in the production of volatile compounds between species of insects will be compared. It is planned to search for compounds with previously unknown properties, as well as checking what changes will occur after the fungal infection at different stages of ontogenetic development of insects.

Identification of volatile compounds produced by insects can contribute to the construction of pheromone traps, which will help in the fight against pests. These studies may also contribute to the development of the market of organic pesticides used against other insects or fungi. This will positively affect the economy, because we will be able to reduce the number of harmful insects.