

Abstract

Bumblebees are important pollinators, commercially used in large-scale plant growing in greenhouses. Their males produce marking pheromones for mating, which attract young bumblebee queens. These pheromones are often a complicated mixture of chemicals, which is produced in the male labial gland, and the mixture itself is specific for each bumblebee species.

The regulation of bumblebee sexual pheromone biosynthesis is largely unknown, and this Master's thesis is focused on the analysis of the mechanisms which lead to the regulation of the *Bombus terrestris* male pheromone's fat-acid and terpenes biosynthesis, specifically on stereospecific enzymatic reduction of double bond of farnesol. This thesis studies the influence of potential neurohormones on a specific enzymatic mixture, which is involved in the pheromone biosynthesis. Methods used in this project include biochemical, analytic and molecular-biology methods.