

Área: **Semioquímicos**

## **MOLECULAR APPLICATIONS IN THE SEMIOCHEMICALS STUDIES**

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### **Resumo**

In order to understand and manipulate semiochemicals to maximize their usefulness in IPM and Biocontrol, research in all aspects of the molecular communication systems is needed. The molecular intricacies of the plant hormones in eliciting a response are yet to be elucidated and can be useful for designing better crop varieties and crop protection strategies in many vegetable crops. The prospecting of the metabolites and proteins related to the plant defense processes to comprehend the metabolic pathways and the role of them in the plants-insects interactions can provides new ecological tools to manage pest insects. Other possibility to pest control is the chemoreception comprehension by functional and structural studies of the odorant binding proteins. These proteins must be produced in high quantity and purity, which can be possible by cloning, performing heterologous expression and recombinant purification. Genes of several insect neuropeptides were identified in an attempt to disrupt vital endocrine functions directly on the target insect pest or for developing transgenic food plants. By understanding the amino acid sequence it is also possible to design agonist, antagonists and even mimics of the neuropeptides leading to endocrine-based pesticides. The chemistry of antipredator defense by secondary metabolites sequestration from host plants and its bioaccumulation into the insect body tissues can be assessed by CG, HPLC, MS and NMR and be applied to the comprehension of the ecophysiological mechanisms of the coevolution. In short, the molecular tools are designed to take advantage of collaborative work on the analytical chemistry, biology, chemical ecology, physiology, neurophysiology, biochemistry, and molecular biology of semiochemicals in order to elucidate, develop, and implement new applications for insect management.

### **Palavras-chave:**