

Preface

Scientific observations of insect sex attractants were first recorded by Fabre in 1879 in his *souvenirs entomologique*. At that time, however, it was impossible to investigate the subject by chemical approaches. The pioneering work of Butenandt during the period from 1939 to 1963 on the female-produced sex attractant (bombykol) of the silkworm moth (*Bombyx mori* L.) opened a new era of research in chemical communication. In 1959, the term “pheromone” was proposed by Karlson and Lüscher. The name is derived from the Greek *pherein*, to transfer, and *hormon*, to excite. Pheromones are substances that are secreted to the outside by an individual and received by a second individual of the same species, thereby releasing a specific reaction such as a particular behavior or developmental process.

Studies on pheromones are indeed interdisciplinary. Chemists and biologists must work together to achieve a common goal. In this Symposium-in-Print, thirty research groups present their latest results. The symposium is divided into four parts. In the first part, ten contributors describe isolation and structure elucidation of new pheromones. You will read of state-of-the-art techniques for elucidating the structures of pheromones isolated in extremely small amounts. The isolation and structure elucidation of pheromones are the first steps in all the subsequent studies. The second part deals with the synthesis of pheromones. Stereoselective construction of the olefins and enantioselective synthesis of chiral and non-racemic pheromones are described by eight authors. Synthesis proves or disproves the proposed structure and provides samples for further biological studies. In the third part, six contributors report their results in biosynthetic studies of pheromones. This area of research is still in the very early stages. Isotope-labelling studies and the use of enzyme inhibitors are now actively pursued to clarify the biosynthesis. The fourth and final part deals with the structure–activity relationships amongst pheromones as well as the molecular basis of pheromone perception. The mechanisms by which pheromone molecules act as carriers of important information are not yet completely clear. The latest progress in this interesting area and also the structure–activity correlations are reported by seven authors.

The present Symposium-in-Print gives an overview of the current status of pheromone research. We have made great progress in this field since the discovery of bombykol by Butenandt. Some of the pheromones are now used practically as environmentally benign pest-control agents. Further developments in bioorganic chemistry of pheromones will certainly teach us the mechanisms by which living organisms utilize pheromone perception to exchange information.

I thank all the contributors for their participation and am grateful to Professor Chi-Huey Wong, the Editor-in-Chief of this Journal, for giving me the opportunity to sum up the four rapidly expanding aspects of pheromone science.

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