

INSECT PEPTIDES AND BIOREGULATION:
PROCEEDINGS OF A WORKSHOP ON INSECT NEUROPEPTIDES

PREFACE

Edwin P. Marks^{1/}

The 1982 Agricultural Research Service (ARS) Workshop on Insect Neuropeptides was held at the Veterinary Toxicology and Entomology Research Laboratory, College Station, TX, June 15-17. It was organized by Ralph A. Bram and W. Klassen of the National Program Staff, Beltsville, MD, and the local arrangements were provided by B. J. Cook and G. M. Holman of the Physiology and Biochemistry Section of the Livestock Insects Research Unit. The purpose of the Workshop was threefold: to review and coordinate work being done in ARS laboratories; single out the most promising lines of inquiry for future cooperative efforts; and identify potential bottlenecks in support and instrumentation. Participants represented the ARS laboratories most actively engaged in neuropeptide research, and their presentations outlined the work being projected or carried out at these locations. B. J. Cook opened the discussions with an introduction to insect neuropeptides in which he outlined the structure and function of the neuroendocrine system and its relationship to the more specialized nervous and endocrine systems. He pointed out that all neurohormones known to date are either proteins or peptides and they can be inactivated by proteolytic enzymes and that, in insects, they occur in extremely minute quantities. Thus, state of the art methodology is necessary to work with them. Additional presentations on the neuroendocrine system included an ultrastructural analysis and consideration of circadian periodicity in neuroendocrine function.

Subsequent presentations on individual neuropeptides were divided into homeostatic peptides and those that control the reproductive process. Individual presentations detailed a number of points made in the introduction regarding the paucity of knowledge now available, the difficulties encountered in working with such minute amounts of material, the problems involved in developing definitive, quantitative bioassays for newly discovered neuropeptides and the need for state of the art methodology and instrumentation. In addition to the presentations, a lively discussion led by Waldemar Klassen and R. A. Bram was held among ARS scientists concerning areas of research priority, need for coordinated effort and the need for common use instrumentation at designated locations.

For a variety of reasons, not all presentations made at the Workshop are included in these Proceedings. However, the papers that are included are representative of the spirit and content of the Workshop. They give a comprehensive picture of the thrust being made by ARS scientists into the area of insect neuropeptides as of this date.

^{1/}Coordinator and special editor of supplement. Metabolism and Radiation Research Laboratory, ARS, USDA, Fargo, ND 58105.