Third Edition

Insect Physiology and Biochemistry

James L. Nation, Sr.

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Preface

Research work and literature in physiology and biochemistry of insects continues to expand in an explosive and exponential fashion. New journals continue to appear; the literature is very widespread. Experienced and established scientists are likely to find time constraints that make it difficult or impossible to read the general field of insect physiology, and the problem is even more acute for graduate students or undergraduates who are just getting acquainted with the physiology of insects. Even though the Internet and online journals and books offer wonderful advantages, considerable time is still required. My aim in this third edition of *Insect Physiology and Biochemistry* is to produce a book that will be useful to advanced undergraduate and graduate students who may have to take a course in insect physiology, and I hope the book will aid working scientists in a variety of disciplines who conduct research with insects but may have limited time to read general insect physiology. All the topics included in the last edition have been retained, with the addition of recent references to each chapter, more than 500 additional references to those previous chapters. Two new chapters—Biological Rhythms and Insect Symbioses—have been added, with an additional 300+ references, so the book now includes about 2600 references to the literature. Another new feature in this edition is the inclusion of Review and Self-Study Questions at the end of each chapter. I have found these helpful, both in classroom teaching and in a distance education approach with students when I could only communicate with them by e-mail.

I thank Dr. N. Krishnan for suggesting the topic of biological rhythms and for helpful comments on an early version of the chapter and pointing me to some important resources. I am indebted to Dr. Guy Bloch, who read a later version of the chapter and provided very helpful comments. The chapter on insect symbioses was read by Dr. Jiri Hulcr and Dr. Kirsten S. Pelz-Stelinski, both of whom provided very helpful suggestions. I thank again those who read and advised me on the previous editions—Glenn Hall, Marie Nation Becker, Jon Harrison, Tom Miller, and anonymous reviewers.

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Author

James L. Nation, Sr., PhD, is professor emeritus of entomology at the University of Florida, Gainesville. He holds a BSc in entomology from Mississippi State University, Starkville, and a PhD in entomology from Cornell University, Ithaca, New York. His special interest in entomology is the physiology and biochemistry of insects. Prior to retirement in 2003, he taught and conducted research at the University of Florida for 43 years. Although he sometimes taught other courses, he introduced a graduate-level course and mainly taught graduate-level insect physiology. Research activities included work in insect excretion, pheromones, cuticular hydrocarbons, and insect nutrition. He served as an associate editor of *Florida Entomologist* from 1967 to 1969, as an editor of the *Journal of Chemical Ecology* from 1994 to 2000, and as editor of *Florida Entomologist* from 2004 to 2010. He has continued to teach a course in the Undergraduate Honors Program called *Global Environmental Issues* each fall term since retirement and introduced a graduate-level course in insect physiology at Florida A&M University in Tallahassee, Florida, in 2006 (taught by interactive television). He wrote both the first (2002) and the second (2008) edition of *Insect Physiology and Biochemistry.* He is active in volunteer activities and gardening.

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