

Obituary

Shalom W. Applebaum

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Shalom W. Applebaum
1934–2011

Professor Shalom Wolf Applebaum, a Mauberger Professor since 1987, a talented, exceptional and outstanding entomologist, a renowned scientist in the field of insect physiology, an inspiring mentor, and winner of the 2010 Rothschild Prize in Agriculture, passed away on October 12, 2011, at his home in Rehovot, Israel. His passing is a tremendous loss to his family, to the Entomology community and to me personally. I lost my mentor, collaborator and a dear friend.

Shalom was born in New York and at the age of 16 immigrated to Israel. After serving in the military he pursued his undergraduate studies in Agriculture at the Faculty of Agriculture of the Hebrew University of Jerusalem and, recognizing his calling in the study of insect processes, he went on to pursue graduate studies majoring in Entomology and Insect Biochemistry. He spent one year at Yale University as a Postdoctoral Research Fellow and subsequently joined the Department of Entomology of the Faculty of Agriculture, HUJ, in 1965 where he remained, serving as mentor and researcher in insect biochemistry and physiology during his full career. His studies involved physiological processes in insects, but did not halt there—his constant question remained the underlying theme in all his studies: “*How does the environment influence the physiology of the insect?*” Insects have adapted to live in very diverse environments and still do so as our



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global climate changes. Seeking to answer this question set the theme for his approach in all his studies and in his teachings and, in fact, Prof. Applebaum was the first to adopt “Ecological Physiology” as a concept and discipline. He compiled this discipline into a graduate course in order to instill this idea into young students, our future scientists.

His research into insect physiology was always directed at pin pointing unique life-cycle strategies that could be exploited for design of potential biocontrol agents. He believed that in order realistically to meet the food demands of the world’s increasing population, it would be necessary to integrate biological and chemical methods. His hypothesis was based on the assumption that each species of insect can be

differentiated by biochemical processes and their response to environmental stimuli—biotic or abiotic, ranging from behavior in response to environmental stress to interactions between individuals and populations which contribute to the benefit of the insect's survival. *“By targeting these interactions we would be able to control selectively insect populations”* he would say. For this approach and his advances in research he was awarded the prestigious Rothschild Prize in Agriculture in 2010. The award was given to him for *“pioneering research on the impact of environmental stresses on the physiology of insect behavior and for applying existing knowledge to devise advanced applications in crop production”*.

Professor Applebaum's studies were at the interface of insect physiology, biochemistry and endocrinology. His early studies were directed at key regulatory processes, essential for the insect's survival. He chose to focus on locust physiology and studied water balance, reproductive maturity and phase changes—all processes responsible for locust population outbreaks. His contributions to the biosynthesis and actions of juvenile hormones and the allatotropic regulation on corpora allata were considerable. The process of vitellogenesis and his findings that adipokinetic hormone was multifunctional, affecting not only lipid mobilization but also responsible for protein inhibition, are examples of his distinctive scientific approach. Together Shalom and I

studied the mating behavior of moth pest species, particularly the process of receptivity suppression as a result of mating. The idea was to interfere with the female's sexual interaction with the male, thereby reducing the reproductive potential of that species. Several substances which hinder pheromone production were examined. In his last years of scientific activity, he extended his studies of the synergistic interaction of chitin synthesis inhibitors and a pathogenic fungus to moth larvae. This approach exploits the insect specificity of chitin synthesis and the species specificity of the entomopathogenic fungus, the combination of which led to strong synergism between the two components.

Shalom is survived by his wife Levia, his son Hillel, his daughters Ronnie, Noga and Michal and his 14 grandchildren: Nitsan, Lilach, Tamar, Asaf, Arye, Yuval, Aviad, Guy, Maya, Yochai, Elishav, Zohar, Moriah and Shachar. We extend our heartfelt condolences to them in their sorrow. He will certainly be remembered for his achievements, but also for his gentle personality and he will be deeply missed by his family, colleagues and friends. We cherish his memory.

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