

WOMEN IN ENTOMOLOGY

An Inspirational Dialogue with Dr. K. Vijayalakshmi: Trailblazing the World of Insects

Dr. K. Vijayalakshmi, an eminent entomologist, was born in Eluru, West Godavari district of Andhra Pradesh, into a family that valued education and service—her father, Sri Rama Rao, was a government employee, and her mother, Yasoda Devi, a homemaker. Her academic journey began at Kasturba Girls High School, Eluru, and she subsequently pursued intermediate education at St. Theresa's College for Women, Eluru. Her inclination towards agricultural sciences led her to enroll in a **Bachelor's degree in Agriculture at the Agricultural College, Bapatla under APAU then, PJTAU now** where she graduated with distinction. She excelled in her academic performance and developed a keen interest in Entomology during this foundational phase.



Dr. K. Vijayalakshmi, Former - Senior Professor & University Head, Department of Entomology, College of Agriculture-PJTAU, Rajendranagar, Hyderabad

Dr. Vijayalakshmi completed her **M.Sc. (Ag.) in Entomology** from the same college securing the **highest OGPA at the University level** and earning **two gold medals** for her exemplary performance. Her postgraduate research focused on *Lasioderma serricorne* (cigarette beetle) in turmeric, with emphasis on biology, varietal resistance, and integrated pest management strategies.

She went on to pursue her **Ph.D. at the College of Agriculture, Rajendranagar, APAU**, and was associated with **ICRISAT**, working under the guidance of the renowned plant virologist **Dr. D.V.R. Reddy** and eminent entomologist **Dr. J.A. Wightman**. Her doctoral research was supported through prestigious fellowships including **CSIR-SRF** and **ICRISAT-SRF**. Her work significantly advanced understanding the virus-vector interactions between *Thrips palmi* and **Peanut Bud Necrosis Virus (PBNV)**. She was the first to report *T. palmi* as a vector of PBNV in India. Additionally, she standardized laboratory protocols for the rearing of thrips and developed experimental techniques for conducting serial transmission studies.

Her professional journey began as a **Consultant at ICRISAT**, contributing to a Netherlands-funded project by Wageningen University (1992–1993), wherein she identified resistant peanut germplasm lines to

PBNV and *T. palmi*. She joined **APAU** (now **PJTAU**) in 1993 as **Assistant Professor**, and over the course of 33 years, served in various capacities across Agricultural Colleges in Bapatla, Aswaraopet, Palem, and Rajendranagar.

Dr. Vijayalakshmi is a distinguished educator with extensive teaching experience at both undergraduate and postgraduate levels. She has mentored **15 M.Sc.** and **6 Ph.D.** students as a major advisor and served on the advisory committees of over 50 students.

Her **research contributions** are substantial, particularly in the fields of Insect-virus interactions, biological control, host plant resistance, storage entomology, pest forecasting using weather-based models and ecological engineering for pest suppression. She has published over **120 research papers** in reputed national and international journals, authored **10 books and book chapters**, and contributed over **50 popular science articles**. Her outreach efforts include radio talks and TV programs focusing on crop pest management and agro-advisory services. She has successfully handled several **national and international projects** as Principal Investigator (PI) and Co-PI. Her international engagements include participation in workshops on **thrips taxonomy at the University of Vermont, USA**, and presenting more than **50 research papers** at various scientific conferences, including in the United States.

Dr. Vijayalakshmi has also worked as **Director (Plant Health Management), NIPHM**, where she coordinated national and international training programs on plant protection strategies; **Associate Dean, Agricultural College, Palem**, where she was instrumental in the establishment and accreditation of the college; **University Head**,

Department of Entomology, PJTAU, where she led departmental research programs and guided faculty and students.

Her scientific and academic excellence has been recognized through numerous awards, including **State Best Teacher Award, Rythu Nestham Award, etc.**

Dr. Vijayalakshmi's illustrious career exemplifies a rare blend of academic brilliance, research innovation, and institutional leadership. Her unwavering dedication to the field of entomology continues to inspire future generations of scientists committed to sustainable pest management and agricultural advancement.

MR (Dr. M. Rajashekhar): Madam, could you briefly reflect on your academic journey and early inspirations—what initially drew you into the discipline of entomology?

KV (Dr. K. Vijayalakshmi): My fascination with insects started during my undergraduate studies in Agriculture, particularly due to their diverse role in ecosystem services which contributed their dominance as a species on earth. This interest led me to pursue post graduate studies in Entomology which focussed on storage beetle affecting turmeric, exploring its biology and control to mitigate post-harvest losses. I chose to carry out my Ph.D research at ICRISAT under the guidance of internationally renowned entomologist and virologist to investigate the transmission of Peanut bud necrosis virus by thrips. My research focussed on identification of thrips vector and the intricate virus-vector relationships in groundnut. The findings marked the first report of *Thrips palmi* as the vector of peanut bud necrosis virus from India paving the way for future research in this area.



MR: Over your distinguished career spanning Teaching, Research, and Extension, which of these domains do you consider the most fulfilling or impactful, and why?

KV: While all three domains have been rewarding, teaching has been the most fulfilling. It has given me a sense of purpose and fulfilment. By sharing my passion for entomology, I have had the privilege of mentoring thousands of students and watching them grow in to accomplished professionals. I have enjoyed guiding the students through research projects and academic pursuits, witnessing their growth and development. Teaching allowed me to inspire and empower the next generation of entomologists to address emerging challenges.

MR: Your specialized focus on thrips and understanding the virus vector relation both are rare and commendable. What motivated you to pursue this niche area, and how do you perceive its relevance in contemporary pest management?

KV: My interest in working with thrips stemmed from the challenges posed by their minute size and complex biology. I found it intriguing to study these tiny insects and their role in the transmission of viral diseases which are often overlooked despite their significant role they play as pest and vector of important viral diseases. Working on thrips requires meticulous attention, precision and patience. And I slowly started to enjoy working with thrips. Understanding the complex interaction between thrips and viruses is crucial for developing effective pest management strategies ultimately benefitting agriculture and food security.

MR: What were the major academic and professional challenges you encountered during your formative years as a student and later as a Professor, Director at NIPHM, University Head, and Associate Dean?

KV: Academic and professional challenges are an inevitable part of the journey. I am no exception, having faced many challenges throughout my career. However, I have learned to view these challenges as opportunities for growth, resilience and innovation

which ultimately made me stand as a stronger professional. As a student balancing academic and research responsibilities is very crucial. During my Ph.D. research, I dedicated five years to study the thrips and their virus vector relationships. The complexity of the work necessitated meticulous experimentation and validation, often requiring repetition of work to ensure accuracy. This rigorous approach ultimately led to significant findings. Later as a professor, University head and Associate dean, though balancing teaching, research and administrative duties posed significant challenges, I ensured to offer quality education to students, facilitated research guidance to entomologists and navigated complex administrative tasks. As a Director at NIPHM, I ensured better resource management and policy implementation.

MR: Given your extensive experience, what do you think are the reasons behind the declining interest among students in classical taxonomy, particularly insect taxonomy, in the present era?

KV: Insect taxonomy is a complex subject which can be daunting to the students. There is notable shortage of expertise and decline in resources and competitive grants dedicated to taxonomic research making it challenging for students to pursue their work in this field. The focus on innovative research and publication matrix are over shadowing the importance of taxonomic work making the subject less appealing to the students.

MR: In your observation, why are a majority of budding agricultural graduates not showing enthusiasm toward Entomology, and what can be done to reverse this trend?

KV: Most of the students perceive entomology as a

very difficult subject as it needs lot of hard work, dedication and interest to perform well which is deterring many students to pursue. Students are prioritizing other areas of agriculture which have brighter career opportunities. To create interest among the students towards the subject, emphasise the importance of entomology in addressing the practical issues of the farmers like pest management, role of pollinators in food security and entrepreneurship opportunities in sericulture, apiculture and entomophagy.

MR: In your opinion, what essential qualities or competencies should a young entomologist possess to emerge as a successful and impactful researcher or extension scientist?

KV: The entomologist should develop passion towards the subject. Stay tuned to the current and latest research across the globe, attend conferences and participate in online forums, network with colleagues and mentors to share knowledge and expertise, interact with farmers and stakeholders to understand real problems at field level.

MR: What, according to you, should be the future thrust areas of entomological research in the context of emerging challenges like climate change, invasive pests, and resistance management?

KV: Development of weather-based pest prediction models, promotion of IPM approaches, molecular characterization of invasive pests, exploring CRISPR-Cas and RNA interference-based pest control methods and investigating biotechnology enhanced genetic control like genetic modification of insects are some of the emerging research areas that can be explored for pest management.

MR: How can we strengthen the last-mile connectivity to ensure that advanced plant protection technologies developed through research effectively reach and benefit smallholder and resource-poor farmers?

KV: The advanced plant protection technologies can be effectively disseminated by fostering partnerships between research institutions, government agencies and private organizations. use of digital platforms like mobile apps, online forums and social media and by establishing robust extension services to communicate research findings among the farmers and stake holders.

MR: Looking back at your professional life, what legacy or message would you like to pass on to future generations of entomologists and agricultural scientists?

Pursue your passion in entomology, be curious to learn the subject, build relations with mentors and stake holders to share knowledge and expertise, stay up to date with emerging technologies of entomology to deal the complex challenges. *“Success*

is not about position or power, but the impact you make in people’s lives and the planet’s health.”

MR: Why many girl students perceive entomology as career option and what motivates them to pursue it?

KV: Entomology indeed requires lot of dedication and hard work. Many girl students are drawn to entomology due to their interest in insects. By combining passion, dedication and hard work, many girl students excel in entomology and making meaningful contribution to the field.

MR: What are the prospects for career growth and advancement in entomology for women globally?

Women in entomology have promising career growth prospects globally with opportunities in academia, Research, government, Industry, public health sectors, Biocontrol and seed testing laboratories. Growing demand for sustainable pest management during recent years in Agriculture is also opening doors for women in this field.

**(Interviewed by Mr. M. Rajashekhar,
Assistant Professor,
Department of Entomology, PJTAU,
Rajendranagar, Hyderabad, India)**