



In conversation with North Eastern women Entomologist Dr. Purnima Das who extensively worked on agro based rich heritage of India: The Lac culture.

Dr. Purnima Das hails from Sivasagar district in Assam. She completed her higher secondary education at Govt Higher Secondary School, Sivasagar. She holds a B.Sc. in Agriculture from AAU and earned her M.Sc. in Entomology from the College of Agriculture, AAU. Later, she obtained her Ph.D. in Entomology from Dibrugarh University, Assam.

Currently, Dr. Purnima Das serves as an Associate Professor at the Department of Entomology, AAU, Jorhat. She is also the Principal Investigator of the Network Project “Conservation of Lac Insect Genetic Resources” since September 2017. Previously, she worked as a Subject Matter Specialist (Plant Protection) at Krishi Vigyan Kendra, Chirang, Bongaigaon, AAU.

In her 20 years of service, Dr. Das has supervised 5 Ph.D. and 14 M.Sc. students, focusing on developing human resources. She has been actively involved in teaching undergraduate and postgraduate courses for the past 14 years and has been recognized as a master trainer for teaching excellence programs in collaboration with Sathguru foundation and Cornell University, USA.

Dr. Purnima Das has made significant contributions to Integrated Pest Management (IPM) in rice, tea, and stored grain pests, emphasizing eco-friendly and economically viable methods. Her research, starting from 2014, has been supported by

grants from DST, SERB, BRNS, DBT, and ICAR-NISA. She has specialized in biopesticides and lac culture technology, earning accolades such as the Best Center award for lac culture technology in India.

Her pioneering work includes the scientific identification of the lac insect prevalent in Assam, *Kerria chinensis* (Mahdihassan), through morphometric and molecular characterization. Dr. Das has identified new host plants for commercial lac cultivation and focuses on value addition of natural resin from lac insects.

Dr. Purnima Das has received the DST Young Scientist Award in 2015, the Dr. B. Vasantharaj David Women Scientist Award in 2019, and the Dr. Rajendra Prasad Excellence Award in 2020. Her achievements reflect her dedication to advancing agricultural science and sustainable pest management practice.

Dr. Shimanthini B K (SBK): *Madam, thank you for speaking to the Indian Entomologist magazine. Could you share the most memorable early career experience?*

Purnima Das (PD): I come from a middle-class family, and I’m the youngest child. My elder brother is a doctor and I initially wanted to become a doctor. However, my journey led me to discover a passion for agriculture, particularly entomology. It all began when I attended the classes taught by Dr. S. K. Dutta, a dedicated entomologist. His teaching was captivating,

especially when he demonstrated the details of insect morphology, like that of a grasshopper. His passion and skill led me to develop interest in entomology, and I chose it as my elective subject during my studies. Dr. Dutta continued to be a significant influence as my advisor during my M.Sc. studies. His guidance was invaluable, helping me complete my degree. After my B.Sc., I started my career as a Project Assistant under the renowned entomologist Dr. L. K. Hazarika. This job focused on biopesticides and it laid the foundation for my future. Under Dr. Hazarika's mentorship, I pursued a Ph.D. in microbial biopesticides. During this time, I was offered a permanent position as a Subject Matter Specialist in Plant Protection, where I gained valuable experience in extension work. Subsequently, I joined AAU, Jorhat as an Assistant Professor in Entomology. Over the years, I became an Associate Professor within the same institute, marking significant milestones in my career.

SBK: What made you choose Entomology as a subject of interest while pursuing undergraduate degree program in Agriculture and What has inspired you to work on lac culture in particular?

PD: My interest in Entomology began when I had exceptional teachers like Dr. S. K. Dutta, Dr. L. K. Hazarika, and Dr. B. C. Dutta who made the subject fascinating. They taught with such skill that I became deeply interested and wanted to learn more about insects. Initially, it started with remembering scientific names of insects, the joy only entomologists can relate to. Over time, I studied various insects belonging to different groups and made an effort to remember their names and scientific classifications. My mentor had a remarkable ability to remember not just insect names and scientific details, but also the names and addresses of all his students. Those moments have led me deep into the subject and to choose entomology as my area of interest.

In Assam, lac is mostly grown in hilly areas by tribal farmers using traditional methods. However,

many of them aren't familiar with modern techniques for lac cultivation. Despite Assam having a lot of potential for lac farming, lack of awareness is a major problem. In 2014, Assam Agricultural University became part of a project "NP-CLIGR". Dr. L. K. Hazarika led this project with a vision to expand lac farming beyond just tribal areas to other parts of Assam. I was involved as a Co-Principal Investigator and became increasingly interested in lac farming. When Dr. Hazarika retired in 2017, I was promoted to Principal Investigator which gave me more responsibility and made me even more committed to improving lac farming practices. In 2019-2020, our center at AAU was recognized as the Best Centre for our work in lac cultivation. This achievement motivated us to continue improving and spreading the benefits of lac farming across Assam.

SBK: What motivated you to pursue Entomology as a profession and Who has inspired you the most in your professional life?

PD: Dealing with insect pests is a significant challenge when it comes to global food security. With insects accounting for over half of the two million known living species, they are a major cause of crop damage. Entomologists play a key role in every aspect of agriculture, serving as important figures who are respected and honored, especially in managing outbreaks or emergency situations has motivated me choose Entomology as a profession.

My family, mentors, and loved ones inspire me to contribute to society. My mother was an ideal lady in my life. Her hard work motivated us to work hard, manage our time, and move forward. Additionally, I was really inspired by my family as they always support and motivate me to achieve my goals. Students are another source of inspiration for me to achieve my desires.

SBK: What are the biggest challenges/hurdles you have faced while working on lac culture?

PD: Lac cultivation in Assam has been limited to hilly areas and practiced using traditional methods. Introducing modern techniques has been a major challenge because farmers are accustomed to their traditional ways. Tribal farmers, who are the main stakeholders, often face difficulties understanding these new methods, especially due to language barriers. In the valley regions where rice farming is predominant, convincing farmers to switch to lac cultivation has been tough for our team. Many farmers are hesitant to adopt modern practices. To tackle this, we adopted a hands-on approach. We demonstrated modern lac cultivation methods directly in farmers' fields, showing them how it can be done effectively. This approach, learning by doing, has been crucial in overcoming resistance and showing the benefits of modern techniques. Reaching remote areas in the hills was another significant challenge. It required extensive effort to connect with farmers in these remote pockets and introduce them to new ways of cultivating lac. Overall, our goal is to bridge the gap between traditional and modern practices, ensuring that farmers can benefit from improved lac cultivation methods while preserving their heritage and livelihood.

SBK: What are the North Eastern research gaps in the field of Entomology and how to narrow down these gaps? Even with all the gaps, how did you make so much notable contributions?

PD: Setting up facilities like insectaries, museums, and well equipped insect labs is difficult in humid regions. Institutions lack collaborations with experts like taxonomists and ecologists, which hinders comprehensive research. Students need more exposure through field visits to cultivate interest. Labs should be specialized for molecular, taxonomy, and ecology studies to boost efficiency. Improving interaction between researchers and advisors is crucial for sharing ideas and solving challenges together. Providing accessible internet and journal resources is

essential for staying updated in the field. Addressing these gaps can strengthen entomological research and education.

When it comes to my contributions, throughout my career, I've been fortunate to receive several competitive extramural grants from esteemed agencies such as ICAR, DST, SERB, BRNS, and DBT, which have supported my research endeavors. My work has focused on enhancing Integrated Pest Management (IPM) strategies for essential crops such as rice, tea, and stored grains. I've dedicated myself to developing environmentally friendly and economically feasible pest control methods, including the formulation of biopesticides derived from local fungi. One of the most fulfilling aspects of my career has been leading the Network Project on "Conservation of Lac Insect Genetic Resources" since 2017. It was a humbling experience to receive recognition through the Best Center award from ICAR-NISA for our efforts in this area. Additionally, my involvement in establishing a Lac Museum and Regional Lac Insect Field Gene Bank at AAU. Undergraduate students are highly benefited from these two establishments. A significant achievement has been the scientific identification of the lac insect prevalent in Assam as *Kerria chinensis* (Mahdihassan), achieved through morphometric and molecular characterization. In 2015, I was honored with the DST Young Scientist scheme for developing a talc-based bio-formulation from native Entomopathogenic fungi, demonstrating high efficacy against rice pests. Under the BRNS project, I have contributed to the development of an early duration insect-resistant mutant line of Ranjit Sub 1 against the leaf folder, *Cnaphalocrocis medinalis*, using physical mutagenesis i.e gamma radiation techniques. These recognitions serve as motivating reminders of the importance of our work in entomological research. They underscore the collective efforts of my team and the steadfast support of our institution. I try to remain dedicated to exploring new avenues in research and continuing to contribute meaningfully to both

scientific knowledge and agricultural practice.

SBK: Would you like to share your proudest moment/achievement?

PD: After working as a Research Fellow for nine years, I got posted as a Subject Matter Specialist (SMS) which was my best achievement. Also in 2011, I have been selected for the post of Assistant Professor, I won the Women Scientist Award, Master trainer of Teaching Excellence program organized by Cornell University USA, and received the European Fellowship for one month of training are the moments that I will cherish.

SBK: How do you balance between professional life and personal life?

PD: Balancing work and personal life is important for any person. I make sure to manage my time effectively by setting clear priorities. This helps me focus on my work at the university and also have quality time with my family and friends. Taking breaks helps me recharge outside of work. I try to communication with my colleagues and family to manage expectations and reduce stress. I am grateful for my husband and children for their never ending support to me in every regard.

SBK: How would you like to see yourself in next 5 years?

PD: As an Associate Professor and Researcher, I wish to make prominent contributions to the University and also to the farming communities through significant work on biopesticides and lac culture. I wish to develop good human resource through the students and to help them in achieving their life endeavors. I hope to see myself as a better teacher, advisor, researcher and motivator for my students. I am committed to the development of the University and look forward to being an integral part of its growth.

SBK: How do you differentiate an Associate Professor and a Researcher/scientist?

PD: As an Associate Professor, my primary responsibilities include teaching, guiding students through their academic endeavors, and actively participating in practical activities. Beyond the classroom, I also engage in various institutional duties that contribute to the University's overall development. My role as a researcher plays a crucial part in enhancing my effectiveness as an educator. It involves conducting in-depth studies and experiments aimed at yielding positive and impactful results. This requires meticulous planning, strategic execution, and a steadfast commitment to staying updated with the latest advancements in my field. When it comes to teaching, my goal is to deliver lectures that are not only informative but also purposeful, ensuring that students grasp the practical applications of the knowledge they acquire. My roles as an Associate Professor and researcher are intertwined, allowing me to contribute meaningfully to both student education and the advancement of knowledge in my field.

SBK: What suggestions/advices do you have for the budding entomologists or early career researchers?

PD: My advice to young entomologist is to prioritize hard work and dedication. It's crucial to cultivate punctuality and sincerity in your work ethic while fostering positive relationships and nurturing a healthy research environment. Stay curious and proactive in learning new concepts. Stay updated with the latest developments in your field. Engage in training programs and collaborate with experts from various allied sciences to broaden your perspective. Actively participate in seminars and conferences to expand your knowledge base and network with peers and mentors. Understanding the fundamentals of entomology and exploring interdisciplinary approaches will enrich your research endeavors. Seek opportunities to secure funding for your projects through relevant agencies,

as this not only supports individual growth but also contributes to the advancement of your institution.

SBK: Madam, any specific suggestions/views/opinion on the Indian Entomologist magazine?

PD: The magazine is already making significant contributions to the research community. It serves as a valuable platform for researchers, academics, and enthusiasts to share their findings, insights, and innovations in the field of Entomology. Furthermore, awarding merit-based rewards to deserving students from all regions of India has the potential to cultivate student interest and enhance their motivation.



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