

STUDENT CORNER

Durgesh Kailas Narwade

1. Please introduce yourself briefly with your current degree, institution, department, and area of specialization.

Ans: I am Mr. Durgesh Kailas Narwade, a Ph.D. student in Entomology at the Department of Entomology, Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri, Maharashtra. I am working under the supervision of Dr. B. V. Deore, Residue Analyst at AINP on Pesticide Residues and Contaminants, MPKV, Rahuri. My areas of specialization include Integrated Pest Management (IPM), biopesticides, pesticide residue analysis, and advanced analytical techniques such as LC-MS/MS and GC-MS/MS. My current research focuses on the chemical management of thrips in pomegranates and the residue dynamics of insecticides used for their protection, with the goal of developing effective pest management strategies while ensuring food safety and promoting sustainable agriculture.

2. What inspired you to pursue a PhD in Entomology?

Ans: My interest in entomology began during my undergraduate studies, but it grew significantly during my M.Sc. research at the Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri. There, I worked on managing the sucking pest complex and *Earias vittella* in okra using a sequential pest-management strategy. This research taught me about the complex interactions between insects, host plants, and pesticides and emphasized the importance of studying pesticide residues, especially dissipation kinetics and pre-harvest intervals (PHI), to ensure food safety and



sustainable crop protection.

While examining the challenges in India's pomegranate industry, I found that thrips infestation and pesticide residue violations are major issues affecting farmers' income and export opportunities. I believe that entomological research can help create practical, science-based solutions that balance effective pest management with food safety. Working with Dr. B. V. Deore, in a well-equipped pesticide residue laboratory, further increased my interest and motivated me to pursue a Ph.D. in this field.

3. Can you explain your research in simple terms for students and general readers?

Why is this research important in the present context of entomology, agriculture,

biodiversity, or pest management?

Ans: Pomegranate is a key export fruit crop in India, with Maharashtra as the top producer. A major issue in its cultivation is the chilli thrips, *Scirtothrips dorsalis*, which causes severe fruit damage and economic loss. Farmers often rely on frequent insecticide use to control this pest, but overuse can lead to pesticide residues in fruits, affecting food safety and export opportunities.

This study aims to fill several gaps in pomegranate pest management. First, despite heavy pesticide use in pomegranate farming, there has been no detailed study on pesticide use patterns and farmers' knowledge and practices in Maharashtra's main pomegranate-growing areas. Understanding these practices is crucial for identifying gaps in knowledge and promoting safer pesticide use. Second, because pomegranate is a key export product, monitoring pesticide residues is vital to meet food safety standards and protect consumer health. Therefore, I am assessing pesticide residues in both farm-harvested and market-collected pomegranates to create baseline data and evaluate the dietary risk to consumers.

Another focus of my research is the testing of new insecticides for thrips control. Currently, only one insecticide is officially approved by the Central Insecticides Board and Registration Committee (CIB&RC) for managing *S. dorsalis* in pomegranate. The long-term use of conventional insecticides has increased the risk of reduced effectiveness and resistance in these thrips. Therefore, identifying effective alternative insecticides is crucial. Finally, I am studying how these new insecticides break down after their application. As there are no data on residue dissipation and pre-harvest intervals (PHI) for these insecticides in pomegranates, this study will help establish scientifically validated waiting periods, allowing farmers to produce safer

fruits while meeting food safety standards.

In simple terms, my research seeks to answer practical questions: Are farmers using pesticides correctly, are the available insecticides still effective against thrips, and when can pomegranates be safely harvested after spraying. The answers to these questions will help farmers improve pest management, support safer food production, and boost India's pomegranate export potential.

4. What are the major challenges you have faced during your research and how did you overcome them?

Ans: Like many research scholars, I faced several challenges during my Ph.D. One major challenge was the analysis of pesticide residues. Pomegranate is challenging to work with because its natural compounds can interfere with residue analysis. To obtain accurate and consistent results, the trials were repeated, and the analytical method was optimized. Another challenge was studying *Scirtothrips dorsalis*. This insect is very small, so understanding its biology and assessing field populations required patience, careful observation, and attention to detail. In addition to laboratory work, I conducted farmer surveys in different districts, performed field experiments, and collected fruit samples for residue analysis. Balancing these tasks with academic responsibilities is sometimes demanding. However, with proper planning and the support of my supervisor, Dr. B. V. Deore and encouragement from the FMC Science Leaders Fellowship, I overcame these challenges and successfully advanced my research.

5. Have you used any modern tools or techniques in your research? If yes, how have they enhanced your study?

Ans: Yes. My research used advanced tools such as LC-MS/MS and GC-MS/MS to identify

pesticide residues in pomegranates. These tools are highly sensitive and can detect even trace amounts of pesticide residues, which is crucial for residue studies.

6. How do you see your research contributing to real-world applications such as sustainable agriculture, conservation, or policy making?

Ans: I hope that my research will make pomegranate farming safer and more sustainable. By studying how farmers use insecticides, we can identify gaps in pesticide use and improve awareness through better training and extension programs. Residue monitoring and dietary risk assessment will provide scientific proof of the safety of pomegranate fruits for consumers and support the survey results. Bio-efficacy and residue dissipation studies will also help identify effective insecticides and suitable pre-harvest intervals, allowing farmers to control thrips effectively while lowering the risk of pesticide residue issues. Overall, I hope this study helps produce safer food and boosts the export potential of Indian pomegranates.

7. After completing your degree, what career path do you wish to pursue?

Ans: I want to build a career in agricultural entomology research and teaching. My aim is to work on integrated pest management, pesticide

residue analysis, biopesticides and food safety. I hope to create practical solutions that will help farmers.

8. What message would you like to give to young students interested in pursuing a career in entomology?

Ans: Entomology is an interesting subject because insects affect almost every part of farming and our environment. If you enjoy observing nature and solving real-world problems, this field offers endless opportunities. My advice to young students is simple: do not seek fame or recognition. Instead, be honest with yourself and enjoy your work. Develop a true love for your subject, stay connected with nature, and keep learning continuously. Research takes time, and not every experiment will yield the expected result, but every success and failure teaches you something valuable. Stay curious, keep asking questions and trust the process. Great discoveries often begin with a simple observation and a curious mind.

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Payel Kar

1. Please introduce yourself briefly with your current degree, institution, department, and area of specialization.

Ans: Hi, I am Payel Kar, 3rd Year PhD scholar, Department of Agricultural Entomology, Bidhan Chandra Krishi Viswavidyalaya. My area of specialisation is the taxonomy and biology of

soil mites (they have the potential to become good biocontrol agents).

2. What inspired you to pursue a PhD in Entomology?

Ans: The short answer is I fell in love with insects. The long one is, it happened during my undergraduate days, we all remember those ENT 101 practical, and I wanted to pursue that. I love



learning about new things, and my PhD work allows me to apply them in real time. I enjoy doing research, every aspect of it, from going on wild-goose-chases on the internet to track down a specific information to being in the field.

3. Can you explain your research in simple terms for students and general readers? Why is this research important in the present context of entomology, agriculture, biodiversity, or pest management?

Ans: My research is on finding soil mites from the hills, which have not been explored yet. It falls under mostly the fundamental science of taxonomy, but it has application as well, the mites that I am looking for are predators, they feed on soil insects. They can be utilised as biocontrol agents, they are already being sold commercially in other countries, I hope through my research they come into focus and are explored more. Also, the most important thing I think I am doing, is documentation, because

it is the first step of biodiversity conservation. The rate at which organisms are going extinct is alarming and conservation is the need of the hour. If we do not know what organisms dwell in our soils and what role they play, how can we take measures to conserve them. At my core, I am a naturalist and I believe that every organism should be able to live on this planet, regardless of their so-called “usefulness” to humans.

4. What are the major challenges you have faced during your research and how did you overcome them?

Ans: The challenge I have faced are multifaceted, first, this is a relatively new area, so not much work has been conducted, I am developing protocols as I go, while this is exiting, the failures and roadblocks are also proportional to that excitement. Secondly, lack of awareness, most people do not understand on which organisms I am working on, the plant mites are relatively known, owing to their status as devastating pests, soils mites are a whole new beast altogether, Thirdly, mindset, within our fraternity, many of are the opinion, what use of taxonomy is and having to justify this becomes tedious and disappointing after a point, don't get me wrong, I will be speaking about this till I can speak no more, but the blatant disregard, sometimes gets my spirits down. But not all is doom and gloom, I have received overwhelming support from my peers and professors as well, inside and outside my university, and that love and support overshadows everything.

So, how did I overcome these challenges, simply just by persevering, by clinging on to my conviction even in the darkest of days and also, I have a very good support system, my father supports me in every endeavour and he always encourages me, my friends are there to listen to my rants whenever I am frustrated, which is often. I have a very good

academic environment, the members of Acarology Lab, BCKV and Prof. Krishna Karmakar, they have provided me with such an environment that doing work does not feel like it.

5. Have you used any modern tools or techniques in your research? If yes, how have they enhanced your study?

Ans: I frequently use 3 tools-

- a. Research Rabbit, to look up and organise my literature review, it is a very useful tool to keep all your papers in one place.
- b. R studio to code for graphs and statistical analyses in my ecology studies, and I would like to thank the ESI who first got me started on this software through the training organised by them. The ease of use and the control over the variables makes it an excellent tool.
- c. QGIS, to make the survey maps.

6. How do you see your research contributing to real-world applications such as sustainable agriculture, conservation, or policy making?

Ans: I see my research contributing to 2 fields- Conservation and Sustainable agriculture. If I can develop a good mass multiplication method, then it could be the first step towards commercialisation and popularisation of these mites as biocontrol agents. And I hope the documentation of their rich biodiversity in the hills

leads to some conservation of the hills themselves, they support a huge diversity and the complex ecosystem, each and every organism needs to be conserved. I hope my research and the resulting articles puts these under-rated critters into the spotlight that they deserve.

7. After completing your degree, what career path do you wish to pursue?

Ans: I want to pursue teaching, my dream job is becoming a professor, I would love to educate, raise awareness in the young minds and instill in them a deep empathy and appreciation for mother nature. And it does not need saying that I would love to continue my ongoing research as well.

8. What message would you like to give to young students interested in pursuing a career in entomology?

Ans: Go for it! If you love learning, if you love these critters, go for it. Keep an open mind, and an open heart and these insects will teach you more about life than self-help books can.

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Loganathan R

1. Please introduce yourself briefly with your current degree, institution, department, and area of specialization.

Ans: I'm Loganathan R, currently pursuing a Ph.D. in Entomology at the Division of Entomology, ICAR-Indian Agricultural Research Institute, New Delhi and specializing in Apiculture.

2. What inspired you to pursue a PhD in Entomology?

Ans: When I was a child, I loved catching and watching fireflies at night. I never imagined that this curiosity would one day become my passion. During my undergraduate studies, Dr. K. Samiayyan and Dr. A. Kalyanasundaram sparked my interest in Entomology, which eventually inspired me to pursue a Ph.D. in the field.



I completed my master's degree at the College of Agriculture, Central Agricultural University, Imphal. My master's research focused on the management of the pulse beetle, *Callosobruchus chinensis* L., using indigenous plant powders and oils on green gram under stored conditions, under the guidance of Dr. Khumukcham Ibohah Singh.

Currently, my doctoral research focuses on investigating the invasion risk of the small hive beetle, *Aethina tumida* Murray, in India. I am conducting this research under the supervision of Dr. Sachin S. Suroshe, Project Coordinator, AICRP on Honeybees and Pollinators, Division of Entomology, ICAR-Indian Agricultural Research Institute, New Delhi.

3. Can you explain your research in simple terms for students and general readers? Why is this research important in the present context of entomology, agriculture, biodiversity, or pest management?

Ans: Recently, the small hive beetle (*Aethina*

tumida Murray) was reported for the first time in North 24 Parganas, West Bengal, India. This invasive pest poses a serious threat to honey bee colonies and the beekeeping industry. My research focuses on identifying its invasion origin and assessing its potential impact on apiculture in India. The findings will help strengthen quarantine measures and support the development of timely management strategies to prevent its establishment and spread, thereby protecting honeybees and ensuring sustainable crop pollination.

4. Have you used any modern tools or techniques in your research? If yes, how have they enhanced your study?

Ans: Yes. I am using CRISPR-based diagnostics to develop a rapid field detection kit for the small hive beetle (*Aethina tumida*). Compared with conventional laboratory-based methods, this approach enables faster, highly sensitive, and species-specific detection, making it suitable for on-site surveillance.

5. How do you see your research contributing to real-world applications such as sustainable agriculture, conservation, or policy making?

Ans: My research will support the early detection of the small hive beetle and identify areas at risk of invasion under changing climate conditions. This will contribute to strengthening quarantine regulations and biosecurity policies, helping to prevent the establishment and spread of this invasive pest. Ultimately, it will promote sustainable apiculture and protect honeybees and other vulnerable pollinators from one of the most destructive pests affecting beekeeping.

6. After completing your degree, what career path do you wish to pursue?

Ans: After completing my Ph.D., I aspire to become an agricultural research scientist, focusing on pollinator health and pest management.

7. What message would you like to give to young students interested in pursuing a career in entomology?

Ans: Entomology is a fascinating field. Stay curious, enjoy the learning journey, inspire others, and use your knowledge to support farmers and protect our ecosystems, just as insects do.

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