



Dr. KARIYANNA B.
Scientist-C (Entomology)
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EDUCATION

B.Sc. (Agriculture)	2014	University of Agricultural Sciences (UAS), Bengaluru, Karnataka
M.Sc. (Agricultural Entomology)	2016	Indira Gandhi Krishi Vishwavidyalay (IGKV), Raipur, Chhattisgarh
Ph.D. (Agricultural Entomology)	2019	University of Agricultural Sciences (UAS), Raichur, Karnataka

TECHNICAL SKILLS AND RESEARCH INTEREST

- Basic techniques in Entomology, Chemical Ecology,
 - Rearing and culturing of the wide range of insect species
 - Testing of insecticides and identification of resistant insect species.
 - Identification and synthesis of semiochemical for specific targeted insect pest
 - Insect population dynamics and distribution.
 - Screening of plant germplasm against insect resistance
- Biotechnology, Molecular biology
 - Genome analysis and gene validation techniques, Basic bioinformatics techniques.
 - Gene identifications and functional analysis of the genes by expression studies.
 - Molecular mechanisms of insect resistance to xenobiotics and plant allelochemicals.
 - dsRNA based gene silencing in insects
 - Nucleic acids and isolation, purification and characterization; Electrophoretic analysis of protein and DNA; PCR techniques
- Taxonomy and diversity of longhorn beetles and other insects

AWARDS AND RECOGNITIONS

- 2016: University Gold and Silver Medal from Indira Gandhi Krishi Vishwavidyalaya, Raipur
- 2016: DST-Inspire Fellowship from Department of Science and Technology, GOI
- 2021: University Gold Medal from University of Agricultural Sciences, Raichur
- 2021: SBA-Dr Abraham Verghese Award for Best PhD thesis in Entomology from Society for Biocontrol Advancement c/o ICAR-NBAIR, Bengaluru
- 2022: ESI-Best PhD Thesis Award from Entomological Society of India, IARI, New Dehli

RESEARCH ACHIEVEMENTS

- First ever monograph of checklist of Longhorn beetles from India (Cerambycidae, Destiinidae, Vesperidae)
- Successful rearing of many field pest and biocontrol agents
- Investigated the population dynamics and level of incidence of *Leucinodes orbonalis* on different indigenous germplasm of eggplant against different climatic factors.
- Developed novel method to propagate the EPN in In-Vitro condition on artificial media
- Identified the insecticide-resistant populations of *Leucinodes orbonalis* collected across India based on log concentration probit mortality bioassays.
- Mined the draft genome and stage specific transcriptome of *L. orbonalis* and identified the full length genes and gene families coding cytochrome P450 monooxygenases, glutathione S-transferases and carboxylesterases.
- Analyzed the expression pattern of cytochrome P450, glutathione S-transferase and carboxylesterase genes involved in resistance in resistant and susceptible populations of *Leucinodes orbonalis*.
- Undertaken knockdown of key metabolic genes imparting insecticide resistance through RNA interference (RNAi).

PREVIOUS WORK EXPERIENCE

- **Entomologist** at Natural Plant Protection Ltd, (UPL Company), Doddaballapura, Bengaluru
- **Assistant Professor of Entomology** at VIT-VAIAL, Vellore Institute of Technology, Vellore, Tamil Nadu

PROFESSIONAL AFFILIATIONS

- Entomological Society of India, IAR, New Delhi
- Society for Bio-control Advancement, ICAR-NBAIR, Bengaluru, Karnataka
- Agriculture and Food e-newsletter, West Bengal.

PUBLICATIONS (PEER-REVIEWED)

- 1) Sharanappa, C.H., Bheemanna, M., Prabhuraj, A....., **Kariyanna, B.**, 2024. Investigation on the insecticidal activities of cyanobacterial extracts as an alternative source for the management of fall armyworm, *Spodoptera frugiperda* (JE Smith) (Lepidoptera: Noctuidae). *Heliyon*. <https://doi.org/10.1016/j.heliyon.2024.e29060> (IF: 4.0).
- 2) Sharanappa, C.H., Bheemanna, M., Prabhuraj, A....., **Kariyanna, B.**, 2024. Toxicity and enzymatic inhibitory action of *Spirulina* sp. and *Nostoc muscorum* extracts on detoxifying enzymes in *Spodoptera frugiperda* (J. E. Smith) (Noctuidae: Lepidoptera). *Acta Scientiarum-Biological Sciences*, v. 46, e68619 <https://doi.org/10.4025/actascibiolsci.v46i1.68619> (IF: 0.68).
- 3) **Kariyanna B.**, Xiong Z., Pradnyarani N., Subba Reddy B.V., Zeng X. 2023. Advance on the biology, behaviour ecology and management of the coffee white stem borer, *Xylotrechus quadripes* Chevrolat, 1863 (Coleoptera: Cerambycidae). *Heliyon* (Cell Press). [Paper Link](#) (IF: 4.0).
- 4) Sharanappa C.H., Bheemanna M., Prabhuraj, A....., **Kariyanna B.** 2023. Toxic effect of cyanobacterial (blue-green algae) extracts as natural pesticides for the control of *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae). *Egyptian Journal of Biological Pest Control* [Paper Link](#) (IF: 2.4)
- 5) Ramkumar, G., Muthusamy, R., Narayanan, M., Dhanapal, R., Karthik, C., Shivakumar, M.S., Malathi, G. and **Kariyanna, B.**, 2022. Pretreatment of mosquito larvae with ultraviolet-B and nitropolycyclic aromatic hydrocarbons induces increased sensitivity to permethrin toxicity. *Heliyon*, p.e11094. <https://doi.org/10.1016/j.heliyon.2022.e11094> (IF: 4.0).
- 6) Ramkumar, G., Asokan R., Prasannakumar, N.R., **Kariyanna B.**, Karthi, S., Alwahibi, M.S., Elshikh M.S., Abdel-Megeed A., Ghaith A., Senthil-Nathan S., Kalaivani K., Hunter W.B., Krutmuang P. 2021. RNA interference 1 suppression of v-ATPase B and juvenile hormone binding protein genes through topically applied dsRNA on tomato leaves: Developing biopesticides to control the South American pinworm, *Tuta absoluta* (Lepidoptera: Gelechiidae). *Frontier in physiology*. <https://doi.org/10.3389/fphys.2021.742871> (IF: 4.138)
- 7) **Kariyanna B.**, Prabhuraj A., Asokan R., Agrawal A., Gandhi Gracy R., Jyoti P., Venkatesan T., Bheemanna M., Kalmath B., Diwan J.R., Pampanna, Y. and Mohan M., 2020. Genome mining and expression analysis of carboxylesterase and glutathione S-transferase genes involved in insecticide resistance in eggplant shoot and fruit borer, *Leucinodes orbonalis* (Lepidoptera: Crambidae). *Frontier in physiology*. <https://doi.org/10.3389/fphys.2020.594845> (IF: 4.138)
- 8) **Kariyanna B.**, Prabhuraj A, Asokan, R., Ramkumar, G., Venkatesan T. and Mohan M., 2020. Genome mining and functional analysis of cytochrome P450 genes involved in insecticide resistance in *Leucinodes orbonalis* (Lepidoptera: Crambidae). *Biotechnology and Applied Biochemistry*. <https://doi.org/10.1002/bab.1997> (IF: 2.43).
- 9) **Kariyanna B.** 2020. Role of Insects and other animals in prediction of natural calamities. *Indian Entomologist*. 1(2): 58
- 10) **Kariyanna B.**, Prabhuraj A., Bheemanna M., Basavaraj Kalmat, Pampanna Y., Mohan M., Diwan J.R., 2020. Influence of cultivars on population dynamics of brinjal shoot and fruit borer *Leucinodes orbonalis* Guenée. *Indian Journal of Entomology*, 83: 1-4. <https://doi.org/10.5958/0974-8172.2021.00043.2>.
- 11) **Kariyanna B.**, Prabhuraj A., Bheemanna M., Basavaraj Kalmat, Pampanna Y., Mohan M., Diwan J.R. 2020. Insecticide usage pattern and evolution of resistance in brinjal shoot and fruit borer, *Leucinodes orbonalis* (Lepidoptera: Crambidae) in India, *Plant Archives*. 20(S2): 1255-1261.
- 12) **Kariyanna B.**, Prabhuraj A., Asokan, R., Prasad Babu, Jalali S. K., Venkatesan T., Gandhi Gracy R. and Mohan M., 2019. Identification of suitable reference genes for normalization of RT-qPCR data in eggplant fruit and shoot borer (*Leucinodes orbonalis* Guenée). *Biologia*, 75(2): 289-297. <https://doi.org/10.2478/s11756-019-00346-4>. (IF: 1.35)

- 13) **Kariyanna B.**, Mohan M., Francesco Vitali and Jacek Kurzawa, **2019**. Checklist of Disteniidae and Vesperidae (Coleoptera) from India. *Oriental Insects*, **1**: 1-13. <https://doi.org/10.11646/zootaxa.4345.1.1> (IF: 0.53)
- 14) Gandhi Gracy R., Basavaarya B.R., **Kariyanna B.**, Arunkumara, C.G., Jalali S.K., Venkatesan T. and Mohan M., **2019**. The relationship between genome size, morphological parameters and development period in four economically important insect species. *Biocatalysis and Agriculture Biotechnology*, **20**: 101188. <https://doi.org/10.1016/j.bcab.2019.101188> (SCI: 2.80)
- 15) **Kariyanna B.**, Mohan M., Rajeev Gupta and Francesco Vitali, **2017**. The checklist of longhorn beetles (Coleoptera: Cerambycidae) from India (Monograph). *Zootaxa*, **4345**: 1–317. <https://doi.org/10.1080/00305316.2018.1531079> (IF: 1.35)
- 16) **Kariyanna B.**, Rajeev Gupta, Mohan, M. and Francesco Vitali, **2019**. Wood-boring longhorn beetles (Cerambycidae: Coleoptera) of agro-forest ecosystem in India. *Indian Journal of Entomology*. **81**: 108-126. <https://doi.org/10.5958/0974-8172.2019.00021.X>
- 17) **Kariyanna B.**, Mohan M., Rajeev Gupta and S. Murali. **2018**. Longhorn Beetles (Cerambycidae: Coleoptera) of Bihar, India. *International Journal of Current Microbiology and Applied Sciences*. **S-I-7**: 576-583.
- 18) **Kariyanna B.**, Mohan M. and Mahendiran G. **2018**. Distribution and species diversity of longhorn beetles (Cerambycidae: Coleoptera) of Gujarat. *Multilogic in Science*. **6** (S-IE): 165-168.
- 19) **Kariyanna B.**, Mohan M., Rajeev Gupta, and Bakthavatchalam N., **2017**. Species Composition and Distribution Pattern of Longhorn Beetles (Coleoptera: Cerambycidae) across India. *International Journal of Current Microbiology and Applied Sciences*. **6**(5): 1677-1688.
- 20) **Kariyanna B.**, Mohan M. and Rajeev Gupta. **2017**. A Catalogue of Longhorn Beetles (Coleoptera: Cerambycidae) of Jharkhand, India. *Bulletin of Environment, Pharmacology and Life Sciences*. **6**(S-I 4): 114-118.
- 21) **Kariyanna B.**, Rajeev Gupta, Bakthavatchalam N., Mohan M., Akkabathula Nithish and Nand Kumar Dinkar, **2017**. Host Plants Record and Distribution Status of Agriculturally Important Longhorn Beetles (Coleoptera: Cerambycidae) from India. *Progressive Research – An International Journal*. **12**(S-II): 1195-1199.
- 22) **Kariyanna B.**, Mohan M. and Rajeev Gupta, **2017**. Biology, ecology and significance of longhorn beetles (Coleoptera: Cerambycidae). *Journal of Entomology and Zoology Studies*. **5**(4): 1207-1212.
- 23) **Kariyanna B.**, Mohan M., Utpal Das, Ravi Biradar and Anusha Hugar A. **2017**. Important longhorn beetles (Coleoptera: Cerambycidae) of horticulture crops. *Journal of Entomology and Zoology Studies*. **5**(5): 1450-1455.

BOOKS

- Chakravarthy A.K and **Kariyanna B.** 2024. Endophytes: Nurturing Crop Health and Sustainable Agriculture. Apple Academic Press, Inc.,4164 Lakeshore Road, Ontario, Canada (Accepted).
- Kariyanna B.**, Mohan M. and Narasa Reddy G. **2018**. Longhorn Beetles (Coleoptera) of Agriculture Importance. LAP-LAMBERT Academic Publisher, International book marketing Ltd. 1-117. ISBN: 978-613-7-05497-0.

BOOK CHAPTERS

- Kariyanna B.**, Remedya P.D., Pooja M.R., Maneesha A., and Ramkumar G. **2024**. Role of endophytes in physiology and development of sucking pests. *In* Endophytes: Nurturing Crop Health and Sustainable Agriculture (Edited by: Dr. A. K. Chakravarthy and Dr. B. Kariyanna). **Apple Academic Press**, Inc.,4164 Lakeshore Road, Ontario, Canada (Accepted).
- Kariyanna B.**, Sunitha N., Sunil K. And Vitali F. **2024**. Endophytes and their significant role on feeding behaviour of longhorn beetles. *In* Endophytes: Nurturing Crop Health and Sustainable Agriculture (Edited by: Dr. A. K. Chakravarthy and Dr. B. Kariyanna). **Apple Academic Press**, Inc.,4164 Lakeshore Road, Ontario, Canada (Accepted).
- Malathi Devi P. and **Kariyanna B.** **2024**. Endophytes on plant pathogens: influences and interactions. *In* Endophytes: Nurturing Crop Health and Sustainable Agriculture (Edited by: Dr. A. K. Chakravarthy

and Dr. B. Kariyanna). **Apple Academic Press**, Inc., 4164 Lakeshore Road, Ontario, Canada (Accepted).

Sai Pooja N., Pramod Kumar M. and **Kariyanna B.** 2024. Endophytes and their role in pest management of bollworms. *In Endophytes: Nurturing Crop Health and Sustainable Agriculture* (Edited by: Dr. A. K. Chakravarthy and Dr. B. Kariyanna). **Apple Academic Press**, Inc., 4164 Lakeshore Road, Ontario, Canada (Accepted).

Spoorthi U. and **Kariyanna B.** 2024. Endophytes and their significant role on feeding behaviour of thrips. *In Endophytes: Nurturing Crop Health and Sustainable Agriculture* (Edited by: Dr. A. K. Chakravarthy and Dr. B. Kariyanna). **Apple Academic Press**, Inc., 4164 Lakeshore Road, Ontario, Canada (Accepted).

Kariyanna B., Bheemanna M., Pal S., Sarkar S. and Mandal R. 2021. Genetic variations and molecular tools for the management of Brinjal shoot and fruit borer, Brinjal Shoot and Fruit Borer *Leucinodes orbonalis* Guenée (Lepidoptera: Crambidae). *In Genetic Methods and Tools for Managing Crop Pests* (Edited by: Dr. A. K. Chakravarthy). **Springer** publishers, Singapore., 391-407.

Kariyanna B., Ramkumar G., Rana, D.K., Bheemanna M. and Karthik C. 2021. Adoption of molecular tools for combating Arthropod pests. *In Genetic Methods and Tools for Managing Crop Pests* (Edited by: Dr. A. K. Chakravarthy). **Springer** publishers, Singapore., 655-669.

Kariyanna B., Sunitha N.D., Drumont A., Vitali F. and Kurzawa J. 2021. Advanced molecular tools for the management of Longhorn beetles. *In Genetic Methods and Tools for Managing Crop Pests* (Edited by: Dr. A. K. Chakravarthy). **Springer** publishers, Singapore. 515-536.

Mohan M., and **Kariyanna B.** 2018. Shifting Equilibrium of Pest and Diseases in Agriculture. *In Biodiversity and Climate Change Adaptation in Tropical Islands* (Edited by Sivaperuman C, Velmurugan A, Singh A. K, Jaisankar I.). Academic Press. **Elsevier.**, 459-478pp.

Kariyanna B., Utpal Das, Naras Reddy G., Ravi Biradar and Murali S. 2019. Status of Sap Sucking Insects in Modern Horticulture Ecosystem in India. *In Advances in Horticulture* (Volume - 7). AkiNik Publications. 0-22pp.

Naras Reddy G., **Kariyanna B.**, Murali S. and Basavaarya B.R. 2019. Agricultural Waste to Wealth: Waste Is Not at All a Waste in Agriculture. *In Advances in Horticulture* (Volume - 7). AkiNik Publications. 23-27pp.

BEST ORAL AND POSTER PRESENTATION AWARDS

2020 **Best oral Presentation Award:** XVII AZRA International conference on frontier research in applied zoology and insect pest management strategies: A way forward for food and nutritional security. University of Agricultural Sciences, Raichur, Karnataka, 12th-14th Feb, 2020.

2018 **Best oral Presentation Award:** Third international Conference on food and agriculture, UPM, Kuala Lumpur, **Malaysia**, International Conference. 28-Nov-2018.

2018 **Best oral Presentation + Cash price (₹1000):** First Post-Graduate Research Conference-2018. University of Agricultural Sciences, Raichur, Karnataka. 12th-13th June, 2018.

2018 **Best poster Presentation:** National Conference on Livelihood and Food Security, BASU, Patna, Bihar. 27th-28th Jan, 2018.

2017 **Best oral Presentation Award:** International conference on Advances in Agricultural and applied sciences for promoting food security, Battishputti, Kathmandu, **Nepal**. 13th-15th May 2017.

2017 **Best oral Presentation Award:** National Conference on Doubling Farmers income for sustainable and Harmonious agriculture, SVU, Tirupati, Telangana. 9th-10th Sep, 2017.

2017 **Best oral Presentation Award:** National conference on Promoting and Reinvigorating Agri-Hort, technological Innovations, Dhanbad, Jharkhand. 11th-12th Nov, 2017.

TRAINING / COURSES ATTENDED

- National Level Online Training on Recent Advances in Entomology – New Dimensions to Invigorate the Insect Pest Management (Certificate No.: ENT-494). University of Horticultural Sciences, Bagalkot College of Horticulture, Bidar. 7th-18th December 2020.
- Integrated Pest Management (IPM) (Verification ID: agmoocs.in/v/5f04099782223). agMOOCs, IIT, Khanpur and COL, Canada (8 weeks). 30th June 2020.

- Diagnosis of crop and stored grain pests and their management (Reference ID: agmoocs.in/v/5e9151c489e04). agMOOCs, IIT, Khanpur and COL, Canada (6 weeks). **30th March 2020.**
- Training programme on Responsible Use of Crop Protection Products. University of agricultural sciences, Raichur and Coromandel international limited at department of agricultural sciences, Raichur. **23rd December 2019.**
- Training programme on *Nursery Management*. University of Agricultural Sciences, Bengaluru, ICAR-KVK, Chintamani. **23-28th April 2018.**
- Workshop on *Climate-Smart Agriculture and Soil*. Dhanbad, Jharkhand. **29-30th March 2018.**
- Short Course on Forensic Entomology (Reference No: IFS/EDU/2018-0622-B). International Forensic Sciences (Court Appointed Commission, Govt. of India & Govt. of Maharashtra Regd. and ISO Certified). **April- May, 2018.**
- Evolution: A course For Educators (Verification ID: 5QXSCW87VUZA). American Museum of Natural History, COURSERA. **Sep-Oct, 2017.**

TRAINING / CONFERENCE ORGANIZED

- **ICAR-NBAIR-Industry Interface Meet.** 26th June, 2019. ICAR-National Bureau of Agriculture Insect Resources, Bengaluru, Karnataka (Organizing committee member).
- **First International Conference on Biological Control.** 2018. ICAR-National Bureau of Agriculture Insect Resources, Bengaluru, Karnataka (Organizing committee member).

SCIENTIFIC COMMUNITY SERVICES AND CORPORATE ACTIVITIES

1. **Editing:** Editor (Subject specialist), Agriculture and Food e-newsletter, ISSN: 2581-8317. Dated from 1st Jan **2020** (www.agrifoodmagazine.co.in).
 - **Student Editor (Lead):** Magazine Committee, *Phasalu-2014*, College of Agriculture, V.C. Farm, Mandya, University of Agricultural Sciences, Bengaluru, Karnataka
 - **Student Editor:** Magazine Committee, *Phasalu-2013*, College of Agriculture, V.C. Farm, Mandya, University of Agricultural Sciences, Bengaluru, Karnataka.
2. **Reviewing:** 5 peer review reports for Indian journal of Entomology under various issues
3. **Volunteer (KA-00046):** *Wild Life Crime Control Bureau (WCCB)*, Ministry of Environment, forest and Crime Control, GOI. Dated from **Jan-2019** to conti....
4. **Website database:** *"Indian Longhorn Beetles"* Mohan M., **Kariyanna B.**, Poorani J., Vitali F., **2018.** <http://www.nbair.res.in/Cerambycidae/index.html>. Indian Longhorn Beetles (April 2018).

DECLARATION

Hereby, I assure that the information furnished above is true. If I get an opportunity to work in your concern, I assure that I shall discharge my duties to the fullest satisfaction of my employer and to the best of my ability.



KARIYANNA B.

Place: Hyderabad, India