



- 1. Name: Dr. Santoshkumar C. Kedar**
- 2. Designation: Scientist C (Agril. Entomology)**
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- 6. Divisional Unit Name: Division of Crop Production and Protection**
- 7. Area of Specialization**
  - Insect pest management of medicinal and aromatic crops, integrated pest management, insect ecology, biological control and assessment of the impact of climate change on crop-pest interactions.
  - My research focuses on understanding the biology and ecology of insects that damage medicinal and aromatic crops and the insects that are beneficial to these crops (predators, parasitoids and pollinators). Major laboratory projects include identifying the pest problems, identifying biological control agents of insect pests, describing population dynamics of major insect pests in medicinal and aromatic agroecosystems and developing IPM strategies. The information generated from the undergoing research has advanced our knowledge about predicting insect pest outbreaks, developing IPM strategies and production of quality honey from medicinal and aromatic crops with managed colonies of bees. The generated information is communicated to the medicinal and aromatic crops cultivating farmers, aroma industries, and entrepreneurs through various training programs, publications, awareness programs and via the web/social media.
- 8. Qualifications**
  - Ph.D.- (Agricultural Entomology) Chaudhary Charan Singh Haryana Agricultural University, (CCSHAU), Hisar (Haryana) 2014
  - M.Sc. - (Agricultural Entomology) Chaudhary Charan Singh Haryana Agricultural University, (CCSHAU), Hisar (Haryana) 2010
  - B.Sc. - (Agriculture) Vasant Rao Naik Marathwada Agricultural University, Parbhani, (Maharashtra) 2008
  - P.G. Diploma - (Plant Protection) Annamalai University, Chidambaram (Tamil Nadu) 2012
  - P.G. Diploma – (Rural Development) Indira Gandhi National Open University, New Delhi, 2016
- 9. Academic/Research Experience**
  - CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow – Scientist (2019)
  - Directorate of Plant Protection, Quarantine, and Storage, Maharashtra- Senior Technical Officer (2017-2019)
  - National Innovations in Climate Resilient Agriculture (NICRA) Project, Vasant Rao Naik Marathwada Agricultural University, Parbhani, (Maharashtra)- Senior Research Fellow (2016-2017)

- Crop Pest Surveillance and Advisory (CROPSAP) Project, Vasantao Naik Marathwada Agricultural University, Parbhani, (Maharashtra)- Research Associate (2015-2016)

#### **10. Honours & Awards**

- Council of Scientific and Industrial Research-Senior Research Fellowship (CSIR-SRF) for Ph.D.
- Indian Council of Agricultural Research-Junior Research Fellowship (ICAR-JRF).
- Qualified Indian Council of Agricultural Research National Eligibility Test with 87%.
- Indian Air Force Benevolent Association Merit Scholarship for B.Sc (Agri.).
- Received Gold Medal for Best Ph.D. Thesis from Smt. Droupadi Murmu, Hon'ble President of India, Shri. Manohar Lal, Chief minister, Bandaru Dattatreya Governor, Shri Jai Parkash Dalal Agriculture, Minister of Haryana and Prof. B.R. Kamboj, Vice Chancellor of Chaudhary Charan Singh Haryana Agricultural University (2023).
- First prize in the 6<sup>th</sup> Photo contest organized by the Entomological Society of India, New Delhi (2022).
- International Travel grant (ITS) award from the Department of Science and Technology to attend and present a research paper at the World Cotton Research Conference-7 held in Cairo, Egypt (2022).
- International Travel grant (ITS) award from the Department of Biotechnology to attend and present a research paper at World Cotton Research Conference-7 (WCRC-7) held in Cairo, Egypt (not availed) (2022).
- Best presentation award in World Cotton Research Conference-7, Cairo, Egypt (2022).
- Received "Best Presentation Award" from the Indian Society of Genetics and Plant Breeding in the National Seminar (2016).
- Received "Best Oral Presentation Award" from the Indian Phytopathological Society in National Symposium (2015).
- Received "Certificate of Merit for Best Photography" from the Indian Council of Agricultural Research (2014).
- Received "2<sup>nd</sup> prize for Best Poster Presentation award" in the National Seminar organised by Chaudhary Charan Singh Haryana Agricultural University (2014).
- Received "Certificate of Merit for Best Photography" from the Indian Council of Agricultural Research (2013).
- Received "Best M.Sc. Thesis research presentation award" from UPKAR foundation (U.P.) (2010).
- Received "First Prize for Best Poster Presentation" in a National Seminar organised by Chaudhary Charan Singh Haryana Agricultural University (2010).

## 11. Publications

- Total number of research publications in SCI Journals: 25
- Book chapters: 2
- Books: 1
- Technical articles: 26
- Abstracts published in Conferences: 27
- Total Google Scholar citations: 233 (10 July 2024)
- **For details:**  
<https://scholar.google.co.in/citations?user=qtdMhnEAAAAJ&hl=en>

### Research Publications

- **Kedar, S. C.**, Gupta, A., Shashank, P. R., Navik, O., & Patil, J. (2023). The lepidopteran pest complex infesting menthol mint in India: Distribution during the crop development, species composition and associated parasitoids. *Crop Protection*, 106382. (NAAS score 8.8)
- Navik, O., Yele, Y., **Kedar, S. C.**, & Sushil, S. N. (2023). Biological control of fall armyworm *Spodoptera frugiperda* (JE Smith) using egg parasitoids, *Trichogramma* species (Hymenoptera: Trichogrammatidae): a review. *Egyptian Journal of Biological Pest Control*, 33(1), 118. (NAAS score 8.4)
- Divekar, P. A., Majumder, S., Halder, J., **Kedar, S. C.**, & Singh, V. (2024). Sustainable pest management in cabbage using botanicals: Characterization, Effectiveness and Economic Appraisal. *Journal of Plant Diseases and Protection*, 131(1), 113-130. (NAAS score 8.0)
- Gaikwad, M. B., **Kedar, S. C.\***, Kalyani, D. C., & Shashank, P. R. (2022). *Eublemma scitula* (Rambur)(Lepidoptera: Erebidae): first evidence of a predator of the invasive barnacle scale, *Ceroplastes cirripediformis* comstock (Hemiptera: Coccidae). *Egyptian Journal of Biological Pest Control*, 32(1), 1-6. (NAAS score 8.4)
- Bawaskar, D.M., Chowdary, N.B., **Kedar, S.C.**, Reddy, B.T., Selvaraj, C., Rathore, M.S., Srinivas, C. and Navik, O. (2022). Traditional and innovative technologies for pest management of tropical tasar silkworm, *Antheraea mylitta* (Drury) by the tribes of Eastern-Central India. *International Journal of Tropical Insect Science*, 42(2), 1737-1748. (NAAS score 7.2)
- Gaikwad, M. B., Verma, S. C., Sharma, P. L., Chandel, R. S., Challa, N., Yankit, P., & **Kedar, S. C.** (2022). Functional response and predatory potential of coccinellid predator, *Oenopia kirbyi* Mulsant (Coccinellidae: Coleoptera) on rose aphid, *Macrosiphum rosae* L. (Aphididae: Hemiptera). *International Journal of Tropical Insect Science*, 42, 2233-2239. (NAAS score 7.2)
- Joshi, S., Bhaskar, H., Poon, V.A., Mala, B.J., Jayanthi, P.K., Pai, S.G., Thite, S.V., Sood, A.K., **Kedar, S.C.\***, Sridhar, V. and Deepthy, K.B. (2021). Occurrence and spread of *Ceroplastes cirripediformis* Comstock (Hemiptera: Coccoomorpha: Coccidae) in India. *Zootaxa*, 5039(4), 561-570. (NAAS score 6.9)
- **Kedar, S.C.** and Pandey, R., 2020. Insect pests and diseases of medicinal and aromatic plants and their management. *The Journal of the Indian Botanical Society*. 99 (3&4): 243-301.
- **Kedar, S. C.**, Saini, R. K., & Kumaranag, K. M. (2018). Whitefly, *Bemisia tabaci* (Gennadius) as influenced by host plants in Haryana. *Indian J Entom*, 80(2), 257-263 (NAAS score 5.59)
- **Kedar, S. C.**, Saini, R. K., & Kumaranag, K. M. (2018). Impact of weather parameters on Coccinellids population in cotton ecosystem. *Journal of Agrometeorology*, 20(2), 12-15. (NAAS score 4.47)
- **Kedar, S. C.**, Saini, R. K., & Kumaranag, K. M. (2017). Seasonal abundance and predatory potential of *Serangium parcesetosum* Sicard (Coleoptera: Coccinellidae) against whitefly,

*Bemisia tabaci* on cotton. *Journal of Entomological Research*, 41(1), 63-68. (NAAS score 5.6)

- **Kedar, S. C., Saini, R. K., & Kumaranag, K. M.** (2016). Seasonal incidence of *Bemisia tabaci* (Gennadius) on Bt cotton in relation to weather parameters. *Journal of Entomological Research*, 40(3), 249-254. (NAAS score 5.6)
- **Kedar, S. C., & Saini, R. K.** (2015). Seasonal occurrence of Solenopsis mealybug, *Phenacoccus solenopsis* Tinsley on different host plants in cotton-based agro ecosystem. *Journal of Cotton Research and Development*, 29(2), 297-300. (NAAS score 4.7)
- **Kedar, S. C., Saini, R. K., Kumaranag, K. M., & Sharma, S. S.** (2014). Record of natural enemies of whitefly, *Bemisia tabaci* (Gennadius)(Hemiptera: Aleyrodidae) in some cultivated crops in Haryana. *Journal of Biopesticides*, 7(1), 57-59. (NAAS score 4.2)
- **Kedar, S. C., Saini, R. K., & Kumaranag, K. M.** (2014). Biology of cotton whitefly, *Bemisia tabaci* (Hemiptera: Aleyrodidae) on cotton. *Journal of Entomological Research*, 38(2), 135-139. (NAAS score 5.6)
- **Kedar, S. C., Saini, R. K., & Ram, P.** (2013). Suitability of different host plants for survival and development of solenopsis mealybug, *Phenacoccus solenopsis* Tinsley (Pseudococcidae: Hemiptera). *Journal of Entomological Research*, 37(1), 47-50.
- **Kedar, S. C., Saini, R. K., & Ram, P.** (2013). Interference by ants in the parasitization efficiency of *Aenasius bambawalei* Hayat against *Phenacoccus solenopsis* Tinsley. *Bioinfolet*, 10, 362-363. (NAAS score 3.4)
- **Kedar, S. C., Saini, R. K., & Ram, P. A. L. A.** (2013). Bionomics of mealybug, *Phenacoccus solenopsis* on cotton in Haryana. *Journal of Cotton Research and Development*, 27(1), 99-103. (NAAS score 4.7)
- **Kedar, S. C., & Kumaranag, K. M.** (2013). Report on outbreak of *Spoladea recurvalis* (Fabricius) on *Trianthema portulacastrum* L. and its parasite from Haryana, India. *Journal of Entomological Research*, 37(2), 149-151. (NAAS score 5.6)
- **Kedar, S.C., Saini, R.K. and Ram, P.** 2013. Relative population density of *Phenacoccus solenopsis* Tinsley on some host plants. *Bioinfolet*, 10(2): 586 (NAAS score 3.4)
- **Kedar, S.C. and Kumaranag K.M.** 2013. Babchi, *Psoralea corylifolia* L. a new host plant of citrus butterfly, *Papilio demoleus* L. *Bioinfolet*, 10(2): 581.
- **Kedar, S. C., Saini, R. K., & Ram, P.** (2012). Survival of solenopsis mealy bug, *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) on cotton in relation to abiotic and biotic factors. *Journal of Entomological Research*, 36(4), 315-319. (NAAS score 5.6)
- **Kedar, S. C., Saini, R. K., & Ram, P.** (2011). Record of coccinellid predators associated with solenopsis mealybug, *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) from Haryana. *Journal of Entomological Research*, 35(3), 245-246. (NAAS score 5.6)
- **Kedar, S. C., Saini, R. K., & Ram, P.** (2011). Relative abundance of coccinellid predators associated with *Phenacoccus solenopsis* on Cotton. *Annals of Plant Protection Sciences*, 19(2), 475-476. (NAAS score 3.4)
- **Kedar, S.C., Saini, R.K. and Ram, P.** 2011. Record of ants (Hymenoptera: Formicidae) associated with solenopsis mealy bug, *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) from Haryana. *Journal of Insect Science*, 24 (Spl.): 166-168. (NAAS score 4.5)

### Book Chapters/Books

- Kedar, S. C., Kumaranag, K. M. and Bawaskar, D.M. 2013. Deployment of benevolent alien genes for pest management 301-309 p. In: Emerging Science and Technology for Food, Agriculture and Environment (Sandeep Kumar, Pawan K. Yadav & Sunil Kumar Eds.) Agrobios (International)Publishers, Jodhpur, ISBN: 978-93-81191-01-9 (Book chapter).
- Kedar, S.C., Kumaranag K.M. and Bhujbal, D.S. 2016. Practical Manual on Insect Pests of Okra: A Field Guide for Identification and Management, LAP LAMBERT Academic Publishing GmbH & Co. KG. Saarbrucken, Germany (ISBN: 978-3-659-79723-1) (Book).

### International/ Natuional Conferences attended: 26

### 12. Technologies developed

- i. Menthol mint Pest calendar for Uttar Pradesh (Visual aid technology) 2024
- ii. Beneficial insects in Medicinal and Aromatic crops (Visual aid technology) 2024



Recently Chief Minister of Uttar Pradesh Shri. Yogi Adityanath released Menthol mint pest calendar and beneficial insects visual aid technologies for farmers (2024)

- iii. CSIR-AROMA android mobile application for farmers on pest management advisory (ICT tool)  
(<https://play.google.com/store/apps/details?id=com.cimap.farmer>)
- iv. Developed Android Mobile Application Cotton (Kapus) (ICT tool)  
[https://play.google.com/store/apps/details?id=cotton.parabhani.com.cotton\\_app\\_new](https://play.google.com/store/apps/details?id=cotton.parabhani.com.cotton_app_new).
- v. Developed database on Integrated Management of white grub.
- vi. Developed conservation strategies for the natural biological control agents for the management of cotton whitefly, *Bemisia tabaci*.
- vii. Identified and reported the carry-over host plants of cotton whitefly, *Bemisia tabaci* and invasive mealybug, *Phenacoccus solenopsis*.
- viii. Identified and reported biological control agents of invasive mealybug, *Phenacoccus solenopsis*.
- ix. Identified and reported biological control agents of cotton whitefly, *Bemisia tabaci*.
- x. Identified and reported potential entomopathogenic fungus, *Isaria javanica* infecting cotton whitefly, *Bemisia tabaci*.
- xi. Developed a weather-based forewarning model for the prediction of cotton whitefly, *Bemisia tabaci* population.
- xii. Developed a weather-based forewarning model for the prediction of invasive mealybug, *Phenacoccus solenopsis* population.

- xiii. Developed a weather-based forewarning model for the prediction of white grub population.

**13. Research Scholars**

⇒ M.Sc.: 6 students guided

⇒ Ph.D: 2 AcSIR, 1 Research Scholar from NDAUT, Ayodhya (U.P.) enrolled

**14. Countries visited:** Israel, China, Italy, France, Taiwan, Egypt, Thailand, UAE

**15. Any other information**

- Attended the course on Hymenoptera Taxonomy organized by the United States Department of Agriculture (USDA) and Entomological Society of Washington at the Taiwanese Endemic Species Research Institute (TESRI), Taiwan.
- Attended a course on Agroecological Crop Protection organized by the National Institute of Agricultural Research (INRA), France & French Agricultural Research Centre for International Development (CIRAD) at the International School for Advanced Education (SIAF) Volterra, Italy.
- Attended the course on Maximizing Opportunities for Biological Control in Asia's Changing Agro-landscapes organized by the International Organization for Biological Control and International Center for Tropical Agriculture (CIAT) at Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, P.R. China (with travel support from CAAS and IOBC).
- Attended Summer Course on Soil Plant Atmosphere Continuum in Arid Regions with A grade conducted by Ben-Gurion University of the Negev, Israel (with fellowship).
- Training course Basics of Remote Sensing, Geographical Information System and Global Positioning System organized by Indian Institute of Remote Sensing, Dehradun, India.
- Training course Hyperspectral Remote Sensing organized by Indian Institute of Remote Sensing, Dehradun, India.
- Attended DNA Barcoding for insect diagnosis workshop organized by the Division of Entomology, Indian Agricultural Research Institute, New Delhi.
- Attended training programme on Science and Technology for Rural Societies, for Scientists and Technologists organised by Indian Institute of Public Administration, New Delhi.
- Attended training on Drones for Agricultural Development organised by the National Institute of Agricultural Extension Management, Hyderabad.
- Attended training on Integrated Pest Management for Sustainable Agriculture organised by ICAR - National Centre for Integrated Pest Management, New Delhi.

### 16. Ongoing Projects

Sr. No.	Title of the project	Funding agency	Total amount of grant	Period (from ...to....)	Status (completed/ running)
1	Enhancement of tribal farmer's income through cultivation and processing of aromatic crops suitable for aspirational district of Nandurbar region in Maharashtra	DBT	1.13 Cr	22-24	Running Co-PI Role pest management expert
2	Organizing trainings for farmers on MAPs cultivation	ATMA, Maharashtra	15.5 L	23-24	Running Co-PI Role pest management expert
3	Popularization of improved variety of menthol mint through improved cultivation practice and post harvest technology for higher yield and quality mint essential oil District Sambhal and Amroha, (U.P.).	Arora Aromatics Pvt. Ltd.	69.89 L	23-24	Running Co-PI Role pest management expert