



Faculty Details proforma
Sri Guru Tegh Bahadur Khalsa College
 University of Delhi, Delhi-7

Department of Zoology

Title	Dr.	First Name	Harpreet Singh	Last Name	Raina	Photograph
Designation		Assistant Professor				
Address		Department of Zoology, SGTB Khalsa College				
Contact No.		9810401985				
Email		harpreet@sgtbkhalsa.du.ac.in				
Web-Page		NA				
Educational Qualifications						
Degree		Institution				Year
Ph.D		University of Delhi				2016
M.Phil		University of Delhi				2013
Masters		University of Delhi				2010
Graduation		University of Delhi				2008
Professional Qualification						
PGDIPLOMA Intellectual Property Rights		Indian Law Institute				2021
Certificate Course in Bee keeping		Krishi Vigyan Kendra, Manesar and IGNOU				2022
Career Profile						
Institution		Designation		Duration	Duties	
SGTB Khalsa College		Assistant Professor (Ad hoc)		21-01-2016 to 12-03-2023	Undergraduate Teaching, Research	
SGTB Khalsa College		Assistant Professor (Permanent)		14-03-2023 till present	Undergraduate Teaching, Research	
Administrative Assignments						
<ol style="list-style-type: none"> 1. Convenor of Department of Zoology, SGTB Khalsa College (2023-24) 2. Member of the Election Monitoring committee of the College (2023-24) 3. Member of the Anti-Ragging Committee of the college (2023-24) 4. Member of the Prospectus Committee of the College (2016-2020) 5. Member of the Calendar Committee of the College (2023-24) 						

6. Member of the Museum Committee of the Department (2024)
7. Member of Admissions Committee of the college (2023-24)
8. Member of Equipment Purchase Committee of the Department of Zoology (2018, 2022, 2023, 2024)
9. Member of Admission Committee of the Department (2020-2023)
10. Members of the Maintenance Committee of the Department of Zoology (2018-2023)
11. Member of the Chemical Purchase Committee of the Department of Zoology (2016-2023)
12. Member of the Department Monitoring Committee (2018-2020)
13. Member of Excursion committee of the Department (2018)

Areas of Interest/Specialization

Entomology, Microbiology, Biotechnology

Subjects Taught

BSc(H) Zoology

Semester I: Non-Chordata I: Protists to Pseudocoelomates [ZOC-101]

Semester II: Non-Chordata II Coelomates [ZOC-201] , Cell Biology [ZOC-202]

Semester IV: Biochemistry of metabolic Processes [ZOC-403]

Semester V: Molecular Biology [ZOC-501]

Semester VI: Animal Biotechnology [ZOE-3], Wildlife Conservation and Management [ZOE-4], Evolutionary Biology [ZOC-602]

B.Sc. Prog. Life Sciences

Semester I: Animal Diversity [ZOPC-101]

Semester II: Comparative Anatomy and Developmental Biology [ZOPC-201]

Semester III: Physiology and Biochemistry [ZOPC-301]

Semester IV: Genetics and Evolutionary Biology [ZOPC-201]

B.A., B.Sc., B.Com. combined

Semester I: Environmental Science [AECC: EVS-101]

Semester II: Environmental Science [AECC: EVS-201]

Semester III: Food Nutrition and Health [GE-3: ZOO; ZOG-006]

Semester IV: Animal Cell Biotechnology [GE: ZOG-001]

Research Guidance

1. **Principal Investigator** of Research Project for Undergraduate students entitled "Diversity Analysis of bacterial symbionts in different Stored Grain Insects and their role in success of their host as economically important Agricultural Pests"

Sanction No. SGTBKC/SC/SP/2017/06/516.

Status: Completed.

2. **Co- Principal Investigator** of Bioinformatics Project for Undergraduate students entitled “Bioinformatic Characterization of Proteins/ Protein Complexes/ Interactions in Albuminome and Their Potential Role in Cancer Progression.”

Sanction No. SGTBKC/SC/P/2018-19/12.

Status: Completed.

Publication Profile

S. No.	Title	List of Authors	Name of journal	Impact factor	Year of Publication	Vol.	Page numbers	ISSN No.
1.	Raina H.S, Rawal V, Singh S, Daimei G, Shakarad M, Rajagopal R.	Elimination of <i>Arsenophonus</i> and decrease in the bacterial symbionts diversity by antibiotic treatment leads to increase in fitness of whitefly, <i>Bemisia tabaci</i> .	Infection Genetics and Evolution.	2.6	2015	32	224-230	1567-1348, 1567-7257
2.	Raina H.S, Singh A, Popli S, Pandey N, Rajagopal R.	Infection of bacterial endosymbionts in Insects: A comparative study of two techniques viz PCR and FISH for detection and localization of symbionts in whitefly, <i>Bemisia tabaci</i> .	PLoS One	2.9	2015	10	e0136159	1932-6203
3.	Raina H.S, Daimei G, Rajagopal R.	Reproductive potential of parthenogenetic <i>Bemisia tabaci</i> with different bacterial endosymbionts.	Indian Journal of Entomology	NAAS Rating-5.24	2018	80(3)	598-604	0367-8288, 0974-8172

4.	Raina H.S, Daimei G, Rajagopal R.	Bacterial endosymbionts in life stages of Asia II-1 genetic group of <i>Bemisia tabaci</i> .	Indian Journal of Entomology	NAAS Rating-5.24	2018	80(3)	623-629	0367-8288, 0974-8172
5.	Raina H.S, Daimei G, Rajagopal R.	Effects of different antibiotics on bacterial endosymbiont diversity in an agricultural pest <i>Bemisia tabaci</i> .	Proceedings of India International Science Festival (IISF), Young Scientist Meet, Department of Science and Technology, Government of India.		2015	Vecto 13	1-8	
6.	Ellango R, Singh S.T, Rana V.S, Priya N.G, Raina H.S, et al.	Distribution of <i>Bemisia tabaci</i> genetic groups in India.	Environmental Entomology	1.8	2015	44(4)	1258-64	1938-2936, 0046-225X
7.	Rana V.S, Popli S, Saurav G.K, Raina H.S, Chaubey R, Ramamurthy VV, Rajagopal R.	<i>A. B. tabaci</i> midgut protein interacts with begomoviruses and plays a role in virus transmission.	Cellular Microbiology	2.6	2016	18(5)	663-678	1462-5822
8.	Daimei G, Raina H.S, Devi P.P, Renukadevi P, Malathi V.G, Chinnaiah S, Mandal B, Rajagopal R.	Influence of <i>Groundnut bud necrosis virus</i> on the life history traits and feeding preference of its vector <i>Thrips palmi</i> Karny.	Phytopathology	3.2	2017	107	1440-1445	0031-949X, 1943-7684
9.	Daimei G, Pukhrambam P. D, Saurav G.K,	First Report of the natural occurrence of <i>Groundnut bud necrosis virus</i> on	Plant Disease	4.5	2017	101 (7)	1333	0191-2917, 1943-7692

	Raina H.S, Rajagopal R.	<i>Catharanthus roseus</i> in India.						
10.	Rana V.S, Popli S, Saurav G.K, Raina H.S, Chaubey R, Ramamurthy V.V, Natarajan K, Rajagopal R.	Implication of the whitefly <i>Bemisia tabaci</i> collagen protein in begomovirus acquisition and transmission.	Phytopathology	3.2	2019	109(8)	1481-1493	0031-949X, 1943-7684
11.	Nitish Rawat, Anjali, Shreyata, Benoy Sabu, Rohit Jamwal, Pukhrambam Pushpa Devi, Karuna Yadav, Harpreet Singh Raina, Raman Rajagopal	Understanding the role of insects in the acquisition and transmission of antibiotic resistance	Science of the Total Environment	8.2	2023	858(1)	159805	0048-9697, 1879-1026

Conferences Organized/Paper Presentations/Poster Presentations/Conferences Attended

1. Project presented on "Study of symbiotic interactions of the bacterial endosymbionts with their host stored grain insects and their biological, ecological and economic effects" at Indian National Science Academy, Delhi on National Science Day (28th February, 2018) organized by Indian Academy of Sciences, Bangalore and Indian National Science Academy, Delhi.
2. Paper presented on "Generation of endosymbiont free lines of *Bemisia tabaci* and deciphering the effect of endosymbionts on its biological development and virus transmission." In 8th International Geminivirus Symposium & 6th International ssDNA comparative Virology Workshop-2016, held at New Delhi, India, from 07-10 November, 2016.
3. Presented paper on "Localization of different bacterial endosymbionts in different stages of whitefly *Bemisia tabaci*." at SKAUST Jammu in Indian Ecological Society International Conference 2016, Natural Resource Management Ecological Perspectives held in Jammu, India 18-20 Feb, 2016, organized by Indian Ecological Society and SKAUST Jammu.

4. Paper presentation on “Comparison of two molecular techniques Polymerase chain reaction and Fluorescence *in situ* Hybridization (FISH) for diagnosis of bacterial symbionts in insects” in International Conference on Bioinformatics, Biochemistry and Bioscience held at India International Centre on 29th Dec, 2015 organized by Mind Reader Publications, Delhi.
5. Presented paper on “Effects of different antibiotics on bacterial endosymbiont diversity in an agricultural pest *Bemisia tabaci*” at IIT Delhi in India International Science Festival held at IIT from 4-8 December, 2015, organized by Ministry of Science and Technology and Earth Sciences, Government of India, VIBHA, IIT Delhi and TIFAC
6. Worked as a member of the organizing committee in one week online “National Faculty Development Program -Understanding Disability” organized by Centre for Disability Research and Training learning Centre, SGTB Khalsa College, DU in collaboration with CDRT, Kirori Mal College, DU, GAD TLC under PMMMNMMTT, Ministry of Education, Govt. of India, from 3rd to 10th July 2024.
7. Participated in “National Conference on Blue Economy” conducted on 19th-20th February, 2024, organized by Indian Phycological Society, KIIT Deemed to be University, DBT ILS, CSIR IMMT, CSIR NIO and BCKIC Foundation, Office of PSA to Govt. of India.
8. Worked as resource person/member of the organizing committee in the National Conference on “First History Congress” Jointly organized by SGTB Khalsa College, University of Delhi, Indian Council of Historical Research, Indira Gandhi National Centre for Arts, GAD TLC under PMMMNMMTT, Ministry of Education from 5th to 7th January, 2023.
9. Participated in an International Virtual Meet on “Non-Coding RNAs in Health and Disease” jointly organized by AIIMS, Bhopal, India, Flowcytometry Solutions (P)Ltd, India and Septroum Life Sciences, India from 12th -14th October, 2022.
10. Participated in “National Conference to celebrate World Immunology Day” held at Department of Zoology, University of Delhi, jointly organized by Department of Zoology, University of Delhi and Indian Immunology Society on 2nd May, 2018.
11. Participated in Indo-US symposium on “Curbing whitefly-plant pandemics: The departure from pesticides to genomics solutions.” organized by Punjab Agricultural University (PAU), Ludhiana, India and The University of Arizona, Tucson, USA at PAU on 4-5 December, 2017.
12. Participated in Indo-US workshop and International Symposium on Biological timing and health issues in the 21st century, held from 22-24 February, 2017 at Department of Zoology, University of Delhi.
13. Participated in Young Scientists’ Conclave as part of India International Science Festival held at National Physical Laboratory, Delhi from 07-11 December, 2016.

14. Worked as a resource person in regional workshop on teaching pedagogy “Research as Pedagogy, a Science Teacher Education Program, (RAP a STEP)” held in Patiala hosted by Punjabi University from September 29 to October 1, 2016, organized by Centre of Excellence for Science and Mathematical Education (COESME) Centre IISER Pune, Department of Biotechnology (DBT) Govt. of India and The British Council of India.
15. Participated in “Workshop on Intellectual Property Rights for Researchers” held on Dec 14, 2015 at Cluster Innovation Centre, University of Delhi.
16. Participated in “Workshop on Next Generation Sequence Data Analysis” held at International Plant Physiology Congress, 2015-Dec 11 to 14 at JNU Convention centre.
17. Participated in “Workshop on Data Acquisition and Analysis” held in department of Zoology, University of Delhi (2014).
18. Poster presentation on “Importance of symbiotic relationships of ciliates with different organisms.” in International Symposium on Ciliate Biology organized by the International Society of Protistologists at India Habitat Centre, India on April 04-06, 2018.
19. Poster presentation on “Role of Heat Shock Proteins in Ciliates” in International Symposium on Ciliate Biology organized by the International Society of Protistologists at India Habitat Centre, India on April 04-06, 2018.
20. Poster presentation on “Role of bacterial endosymbionts in ciliates” in International Symposium on Ciliate Biology organized by the International Society of Protistologists at India Habitat Centre, India on April 04-06, 2018.
21. Poster Presentation on “Symbiotic association of bacterial endosymbionts with the hemipteran insects leading to their success as major agricultural pests.” in International Conference and Outreach Program on Environment & Ecology: Sustainability and Challenges, (ENCON-2017) organized at Sri Venkateshwara College, New Delhi on 4th of January, 2017.
22. 1st prize for Poster presentation “A *B. tabaci* midgut protein interacts with begomoviruses and play a role in virus transmission.” in symposium on “Challenges in Plant Virology and Our Preparedness” organized by Indian Virological Society and ICAR-IARI on 5th Dec, 2015.
23. Poster presentation on “Increase in fitness of whitefly *B. tabaci* by elimination of *Arsenophonus* and decrease in bacterial symbionts diversity by tetracycline treatment.” in symposium on “Challenges in Plant Virology and Our Preparedness” in symposium on “Challenges in Plant Virology and Our Preparedness” organized by Indian Virological Society and ICAR-IARI on 5th Dec, 2015.

Research Projects (Major Grants/Research Collaborations)

NA
Awards and Distinctions
<ol style="list-style-type: none"> 1. Patent Granted: An Insect Rearing Multipurpose Chamber Useful for Controlled Live Entomological Studies. Patent No.-371814, Inventors-Harpreet Singh Raina, Rajagopal Raman. Date of Grant: 13/07/2021. 2. YOUNG SCIENTIST AWARD awarded by Indian Virological Society in Association with DU, JNU, NRCPB, NIPGR on 8th International Geminivirus Symposium & 6th International ssDNA Comparative Virology Workshop for outstanding contribution in the field of Geminivirus research. 3. Gold Medalist in PG Diploma in Intellectual Property Rights from Indian Law Institute, New Delhi. 4. SENIOR RESEARCH FELLOW- CSIR-UGC, 2014-2016 5. JUNIOR RESEARCH FELLOW-CSIR-UGC, 2012-2014 6. SHRI JAI DEV MEMORIAL AWARD: Academic excellence award for obtaining 1st position in B.Sc (H) ZOOLOGY for the three years academic years 2005-08.
Association With Professional Bodies
<ol style="list-style-type: none"> 1. Member of Entomological Society of America (ESA), Member ID: 96563. 2. Member of American Phytopathological Society, (APS), Member ID: 238528. 3. Life member of Association of Microbiologists of India (AMI). Life membership number/ID: 4366-2016. 4. Life Member of The Entomological Society of India, (ESI). Life membership number/ID: 1133. 5. Member of Aakriti: Zoological Society of Department of Zoology, SGTB Khalsa College, University of Delhi.
Refreshers/Orientations/FDP/Workshop/Programme/Courses
<ol style="list-style-type: none"> 1. Completed one-week online "Faculty Development Programme on Academic Research Writing" from 20th -26th March, 2024 organized by Teaching learning Centre, Ramanujan College, University of Delhi in collaboration with Govt. E Raghvendra Rao Postgraduate Science College, Bilaspur and Rani Channamma University, PG Centre Torvi, Vijaypur under the aegis of Malviya Mission Teacher Training Programme. 2. Completed one-week online "National Faculty Development Program on Unveiling Apiculture: Exploring the Art and Science of Bee keeping Methods and Applications" from 10th -16th October, 2023, jointly organized by Miranda House, Dyal Singh College, ICAR-AICRPHB&P and Guru Angad Dev Malviya Mission Teacher Training Centre, SGTB Khalsa College. 3. Completed 4-week online "Faculty Induction Programme for Faculty in Universities/Colleges/Institutes of Higher Education" from 23rd May to 21st June, 2024 organized by Teaching learning Centre,

Ramanujan College, University of Delhi in collaboration with Army Institute of Education (AIE) under the aegis of PMMMNMMTT, Ministry of Education, Govt. of India.

4. Completed one-week online “National Faculty Development Program on Basic IT tools, Advanced Spreadsheet Tools and Statistical Software Package with SPSS” from 27th -3rd November, 2023, jointly organized by University of Delhi and GAD TLC, SGTB Khalsa College under PMMMNMMTT, Ministry of Education, Govt. of India.
5. Participated in the course “CRISPR-CAS: The Molecular Toolkit-Principles and Applications” from 10th - 12th April, 2024, organized by Flowcytometry Solutions (P) Ltd, Jaipur India.
6. Participated in the course “Flowcytometry and its Applications in Biological sciences and Clinical Diagnostics” from 21st -24th September, 2022, organized by Trust for Education and Training in Cytometry (TETC), India.
7. Participated in the course, “Advanced Course on Membrane Biogenesis, Porosomes, Health and Disease: Molecular underpinnings of secretions and membrane fusions” conducted at Jawaharlal Nehru University, Delhi under the Global Initiative for Academic Networks (GIAN) program of MHRD, Govt. of India from 19-25 June, 2016.
8. Two months research orientation program “Anti-microbial effects of Carbon Nanotubes.” in Nano-biotech laboratory of Kirori Mal College (DU) under the supervision of Dr. Anita Kamra Verma, from 20/6-20/8/08.

Abstracts Published

1. Harpreet Singh Raina, Raman Rajagopal. Localization of different bacterial endosymbionts in different stages of whitefly *Bemisia tabaci*. Natural Resource Management Ecological Perspectives. 113 (Vol 2): 717-718. ISBN: 978-93-5254-337-3.
2. Harpreet Singh Raina, Raman Rajagopal. Comparison of two molecular techniques Polymerase chain reaction and Fluorescence *in situ* Hybridization (FISH) for diagnosis of bacterial symbionts in insects. ICBB-2015 (29 -30 December), ISBN: 978-81-8387-593-6.
3. Harpreet Singh Raina, Guisuibou Daimei, Rohit Jamwal, Pukhrambam Pushpa Devi and Raman Rajagopal. Generation of endosymbiont free lines of *Bemisia tabaci* and deciphering the effect of endosymbionts on its biological development and virus transmission. Virus Dis. (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7.
4. Sonam Popli, Harpreet Singh Raina, Ambika Singh, Guisuibou Daimei, Raman Rajagopal. Fluorescence *in situ* Hybridization (FISH) and Polymerase chain reaction (PCR) as diagnostic tools for detecting

bacterial symbionts in *Bemisia tabaci*: a vector of begomoviruses. *Virus Dis.* (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7.

5. Pukhrambam Pushpa Devi*, Rohit Jamwal, Harpreet Singh Raina, Raman Rajagopal. *Bemisia tabaci*: an invasive insect vector of begomoviruses. *Virus Dis.* (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7.
6. Raman Rajagopal, Vipin Singh Rana, Harpreet Singh Raina, Sonam Popli, Rohit Jamwal, Gunjan Kumar Saurav. Studies on virus vector interaction, with reference to *Bemisia tabaci* and geminivirus. *Virus Dis.* (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7.
7. Vipin Singh Rana, Sonam Popli, Gunjan Kumar Saurav, Harpreet Singh Raina, Rahul Chaubey, V. V. Ramamurthy, R. Rajagopal. Identification and characterization of a receptor midgut protein for begomovirus in *Bemisia tabaci* *Virus Dis.* (October–December 2016) 27(4):405–459. DOI 10.1007/s13337-016-0351-7.

Paper Setting for University of Delhi

1. Paper Setting of Paper: Food Nutrition and Health-32235906-oc-Three Year CBCS_OC/LOCF Examination for Department of Zoology, University of Delhi (2021).
2. Paper Setting for B.Sc. (Hons) Zoology Exam, Dec-2022 for Paper: Biology of Insecta: 32237904-OC, Department of Zoology, University of Delhi (2022).
3. Paper Setting for B.Sc. (Hons) Zoology Exam March-2023 for Paper: Biotechnology 223603, Department of zoology, University of Delhi (2023).
4. Paper setting for B.Sc Applied Sciences with Agrochemical and pest management Exam, Nov-Dec, 2024, University of Delhi (2024)

Syllabus Drafting for University of Delhi

1. Member of Syllabus making Committee (2022) for Paper Apiculture (Zoo Hons and B.Sc. Prog. Life Sciences) under NEP, 2020.
2. Member of Syllabus making Committee (2022) for paper Economic Zoology (Zoology Hons) under NEP, 2020.
3. Member of Syllabus making Committee (2022) for Paper Biology of Insecta under NEP, 2020.

Participation in Webinars

1. Participated in online International Virtual Meet on “Non-Coding RNAs in Health and Diseases” from 12 oct to 14 oct. 2022, organized by All India Institute of Medical Sciences, (AIIMS) Bhopal, Flow Cytometry Solutions (P) Ltd, India and Septroum Life Sciences, India.

2. Participated in online Webinar “Breaking Through RT-qPCR boundaries in gene expression analysis” on 23 Sept. 2022 organized by Thermo Fisher Scientific and Labroots Network.
3. Participated in Webinar “Human Proteomics: from the operating room to the lab and back” on 24th Sept. 2022, organized by SomaLogic and Labroots Network.
4. Participated in online Webinar “Real time PCR for molecular detection and research of infectious disease pathogens beyond SARS-COV-2” on 28th Sept. organized by Thermo Fisher Scientific and Labroots Network.
5. Participated in Webinar “HIV Diagnostic testing in the COVID-19 era. Are Clinical Laboratories being overly Sensitive” on 3rd Oct. 2022, organized by BIO-RAD and Labroots Network.
6. Participated in Webinar “Enabling fully automated NGS sample preparation using digital microfluidics” on 4th Oct. 2022, organized by MICROCULUS- Science Simplified and Labroots Network.
7. Participated in Webinar “Cell DIVE: Transforming tissue research with open multiplexing” on 5th Oct. 2022, organized by Leica Microsystems and Labroots Network.
8. Participated in Webinar “Genome Editing: Disease modelling to novel therapeutics” on 6th Oct. 2022, organized by Thermo Fisher Scientific, GIBCO and Labroots Network.
9. Participated in Webinar “Smarter sample preparation for single-cell sequencing” on 11th Oct. 2022, organized by Miltenyi Biotech and Labroots Network.
10. Participated in Webinar “Combating AMR in bacterial infections and investigating the immune response” on 11th Oct. 2022, organized by Perkin Elmer and Labroots Network.
11. Participated in Webinar series “2022 Asia Pacific qPCR & dPCR Webinar Series” on 11th Oct. 2022, organized by Thermo Fisher Scientific.
12. Participated in Webinar “Producing Recombinant Proteins with the Baculovirus Expression Vector System (BEVS)” on 11th Oct. 2022, organized by Sino Biological and Labroots Network.