Shivaji College Faculty Details Proforma

Title		First Name		Last Name		Photograph
	Dr.		Rashmi		Singh	
Designation	Assistant Professor in the Department of Zoology					
Address	Flat No. 612, E2, VASANT KUNJ, NEW DELHI-110070					
Office Phone No.	01125191458					
Residence	01126785025					
Mobile	8826741889					
Email	rashmirrsingh@gmail.com					
Web-Page	NA					
Educational Qualifications						
Degree	University/Institute					Year
Ph.D.	University of Allahabad					2011
M.Phil./M.Tech.	NA					
PG	University of Allahabad					2006
UG	University of Allahabad					2004
Any Other Qualification	Six Months Certificate course (CCA) in computer application					2008
CSIR/NET	Life Sciences					2008
Career Profile						

Research Experience

Doctoral Research

Topic: Genetic variation in dacine (*Bactrocera*) fruit flies (Dacinae: Tephritidae: Diptera)

"Bactrocera fruit flies belong to the family Tephritidae are biologically interesting and economically important group of order Diptera. Tephritidae fruit flies like *B. cucurbitae, B. dorsalis, B. zonata* and *B. diversus* are widely distributed throughout the world. Larvae of fruit flies infest and damage a wide range of fruits and vegetables such as mango, peach, guava, muskmelon, gourds and pumpkin etc. *B. cucurbitae* is known to cause over 50% of the damage to the cucurbit vegetables and make them inedible and unmarketable. It is very interesting area to the researchers to study the biology and control of these flies through the use of insecticides. There has been a little work done on the biology and genetic control of tephritid flies in India, which necessitates an in depth understanding of the genetic mechanism of these flies. Our aim was to establishing a phylogenetic relationship using allozyme and RAPD-PCR techniques among different species of *Bactrocera* flies."

Successfully established the colonies of fruit flies at 26 ± 1^0c.

Studied the Enzyme staining patterns using Polyacrylamide Gel Electrophoresis and different enzyme staining protocols.

Successfully extracted and quantified genomic DNA.

Demonstrated DNA amplification and polymerisation using a BIORAD thermal cycler.

Studied DNA electrophoresis banding pattern run on 1.5% Agarose gel.

The approximate molecular weight of the amplicons were determined by comparison with bands for DNA ruler with the help of Biovis V4 1D Gel Analysis Software.

Successfully Data matrix was prepared, Average heterozygosity, Nei's genetic identity and distance were calculated by using Tools For Population Genetic Analysis Software (TFPGA).

Teaching Experience:

Working as an Assistant Professor (adhoc) in the Department of Zoology at Shivaji College, University of Delhi since January, 2015 till date.

Worked as a Guest Lecturer in the Department of Zoology at Hindu College, University of Delhi since Feb, 2014).

Worked as a Guest Lecturer in the Department of Zoology at Sri Aurobindo College, University of Delhi since July, 2013.

Worked as an Assistant Professor (adhoc) in the Department of Zoology, Acharya Narendra Dev College, University of Delhi, 2012-2013.

Worked as a Guest Lecturer in the University of Allahabad, 2010-2012.

Subject taught: Choradata, Nonchordata, Genetics, Molecular biology, Biotechnology, Cell Biology, Environmental Sciences (Theory and Practicals).

Administrative Assignments

NA

Areas of Interest/Specialisation

Molicular Biology
Cytogenetics
Evolutionary Biology

Subjects Taught

Diversity of Chordata
Non-chordata
Genetics
Molicular Biology
Evolutionary Biology
Cell Biology
Aquaculture and Fish Keeping

Innovation Project/Research Projects (Major Grants/Research Collaboration)

'Worked as member in a project of Delhi University on "A dried blood spot collection study for :tection of Brucellosis in Bovine population of India: an ELISA based system specific to Omp25 and mp28 proteins of *Brucella abortus* (2015-2016)".

Publications Profile (*Research Papers/Books)*

Singh Rashmi, N. Bajpai and R.R. Tewari, Genetic characterization of *Bactrocera (Dacus)* flies (Diptera: Tephritidae) based on RAPD- PCR., 2011, International Journal of Pharma and Biosciences, **2:** 498-503. ISSN- 0975-6299 IF-2.958.

Rashmi Singh, Akanksha Singh, Uma R. Agrawal and R.R. Tewari, Allozyme analysis for assessing genetic variation in the species *Bactrocera diversa* and *B. zonata* (Dacinae: Tephritidae), 2011, International Journal of Pharma and Biosciences, **2:** 193-199, ISSN- 0975-6299, IF-2.958.

Saumya Srivastava, **Rashmi Singh** and R.R. Tewari, Temporal variation among populations of house fly *Musca domestica* (Diptera: Muscidae), International Journal of Pharma and Biosciences, 2011, **3:** 254-260, ISSN- 0975-6299, IF-2.958.

Rashmi Singh and R.R. Tewari, Genetic variation among fruit flies of the genus Bactrocera (Diptera: Tephritidae: Dacinae), 2012, Proceedings of the National Academy of Sciences, India Section B: Biological Sciences DOI 10. 1007/s40011-012-0023-3, ISSN- 0369-8211 IF-0.396.

Akanksha Singh, **Rashmi Singh**, Uma R. Agrawal and R.R. Tewari, Stress response of polytene chromosomes of *Sarcophaga ruficornis* (Fab.) (Sarcophagidae: Diptera) to lead nitrate, 2012, International Journal of Pharma and Biosciences, **3(3)B:** 578-583. ISSN-0975-6299, IF-2.958

Rashmi Singh and Akanksha Singh, Genetic variation in two species of fruit flies of the genus *Bactrocera* (Dacinae: Tephritidae: Diptera), 2013, International Journal of Pharma and Biosciences, **4(2):** 617-623, ISSN-0975-6299, IF-2.958.

Akanksha Singh and Rashmi Singh, Induction of a puffing by chromium nitrate treatment in polytene chromosomes of pupal food pad of *Sarcophaga ruficornis* (Fab.) (Sarcophagidae: Diptera), 2015, Journal of Basic Sciences, 2(1): 1-5. ISSN- 2554-1331.

Akanksha Singh and Rashmi Singh, Genotoxic effects of Cadmium Chloride on polytene chromosomes of *Sarcophaga ruficornis* (Fab.) (Sarcophagidae: Diptera), 2015, International Journal of Development Research, 5(9): 5458-5462. ISSN- 2230-9926. IF-1.325.

Akanksha Singh and Rashmi Singh, Study of cypermethrin induced puff in *Sarcophaga ruficornis* (Fab.) (Sarcophagidae: Diptera),2018, Int J Pharma and Bio Sciences; 9(1): (B) 77-82.

Nimita Kant, Parul Kulshreshtha*, **Rashmi Singh**, Anuradha Mal, Shashikant Kumar, Mohit Tehlan, Amita Dwivedi, Rinkle Mehra, Riya Ahuja, Shilpa Kausik and Paritosh Ahmed. Knowledge and prevalence of Brucellosis: a case study of NOIDA, a National Capital Region of India. 2018. **The Delhi University Journal of Undergraduate Research and Innovation** (DUJURI), Volume 3, Issue 1, January 2018, ISSN: 2395-233**4.**

Conference/Seminar/Faculty Development Programme/Workshop

Abstract and Poster Paper Presented:

- **Rashmi Singh** and R.R. Tewari: Genetic variation in fruit fly *Dacus cucurbitae* (Diptera:Tephritidae). 78th annual session of National Academy of Sciences, India- "Novel Approaches for Biomedical Research" Punjab University. Chandigarh, (Nov.21-23, 2008).
- **Singh Rashmi**, Neelam Bajpai and Raghav Ram Tewari: Genetic relationship between two Species of fruit flies of the genus *Dacus* (Dacinae: Tephritidae: Diptera) Proc. XXXIII All India Cell Biology Conference (AICBC) and International Workshop on "Cell Cycle Regulation" School of life sciences, University of Hyderabad, Hyderabad (Dec.10-13, 2009).
- **Rashmi Singh** and Raghav Ram Tewari: Genetic variation in fruit fly *Dacus cucurbitae* (Dacinae :Tephritidae: Diptera). 79th annual session of National Academy of Sciences, India- "Science and Technology and the Young (Career, Creativity, Excitement)" University of Kolkata in collaboration with Ramkrishna Mission Institute of Culture, (Dec.14- 16, 2009).
- **Rashmi Singh** and Raghav Ram Tewari: Enzymatic variability in fruit fly *Dacus dorsalis* (Diptera: Tephritidae: Dacinae) National Conference on emerging trends in Biochemistry and satellite symposium of the Academy of Environmental Biology, Department Biochemistry University of Allahabad, Allahabad, (Jan. 23-24, 2010).
- **Rashmi Singh**, Neelam Bajpai and Nidhi Mishra. Genetic Characterization of *Bactrocera cucurbitae* and *Bactrocera dorsalis* (Diptera: Tephritidae) with RAPD-PCR and Allozymes. 80th annual session of National Academy of Sciences, India, "Climate Change- Reasearch Awareness and Capacity Building" Jaipur National University, Jaipur, (Dec. 2-4, 2010).
- Nidhi Mishra and **Rashmi Singh**. Nuclear anomalies induced by temperature stress in housefly *Musca domestica* (Diptera: Muscidae). 80th annual session of National Academy of Sciences, India, "Climate Change- Reasearch Awareness and Capacity Building" Jaipur National University, Jaipur, (Dec. 2-4, 2010).
- **Rashmi Singh** and Nidhi Mishra. Genetic characterization of fruit fly *Dacus dorsalis* (Diptera: Tephritidae). 98th Indian Science Congress, Animal, Veterinary and Fishery Sciences, SRM University, Chennai. (Jan. 3-7, 2011).
- Nidhi Mishra, **Rashmi Singh** and R.R. Tewari. Testing of genotoxic potential of mercury in housefly *Musca domestica* (Diptera: Muscidae) by using cytogenetic end points. 98th Indian Science Congress, Animal, Veterinary and Fishery Sciences, SRM University, Chennai, (Jan. 3-7, 2011).
- Akanksha Singh, **Rashmi Singh** and R.R. Tewari. Chromosomal response to Chromium in *Sarcophaga ruficornis* (Fab.) (Sarcophagidae: Diptera) 22nd All India Congress of Zoology and National Seminar on Recent advances in Biological Sciences: Biodiversity and Human Welfare, December 29-31, 2011.
- **Rashmi Singh** and Akanksha Singh. Genotoxic effect of lead nitrate on polytene chromosome and nucleolus of *Sarcophaga ruficornis*. National seminar on water and air quality in urban ecosystem, Shivaji college, New Delhi, 22 march 2016.
- **Rashmi Singh**, Nimita kant, Parul Kulshreshtha, Anuradha Mal, Seroprevalence survey of Brucellosis in buffalo population of Delhi-NCR region. National symposium on Trends in research and innovations in life sciences at undergraduate level, DDU, University of Delhi, 30 March, 2016.

- **Rashmi Singh**, Nimita kant, Parul Kulshreshtha, Anuradha Mal, Seroprevalence survey of Brucellosis in buffalo population of Delhi-NCR region. Brucellosis 2016 International research conference, NASC, New Delhi, 17-19 November, 2016.
- Nimita Kant, **Rashmi Singh** and Akanksha Singh, Effect of insecticide on polytene chromosomes of *Sarcophaga ruficornis* (Fab.), On role of microbe-plant-animal interactions in human health, INSCR International conference (IIC-2017), University of Delhi, 26-28 September, 2017.

Seminar/ Symposium attended:

- Symposium on "Molecular Approaches in Cytogenetics" Department of Zoology, University of Allahabad, (October 20-22, 2005).
- 78th annual session of National Academy of Sciences, India,"Novel approaches for Bio-Medical Research" Panjab University, Chandigarh, (Nov. 21-23, 2008).
- 80th annual session of National Academy of Sciences, India, "Climate Change- Research Awareness and Capacity Building" Jaipur National University, Jaipur, (Dec. 2-4, 2010).
- National Conference on Emerging trends in Biochemistry and satellite symposium of the Academy of Environmental Biology, Department Biochemistry University of Allahabad, Allahabad. (Jan. 23-24, 2010).
- 98th Indian Science Congress, Animal, Veterinary and Fishery Sciences SRM University, Chennai, (Jan. 3-7, 2011).
- Scientific paper writing organized by The National Academy of Science, India, (NASI) from October 22-24, 2011 at Allahabad.
- National seminar on water and air quality in urban ecosystem, Shivaji college, New Delhi, 22 march 2016.
- National symposium on Trends in research and innovations in life sciences at undergraduate level, DDU, University of Delhi, 30 March, 2016.
- Brucellosis 2016 International research conference, NASC, New Delhi, 17-19 November, 2016.
- On role of microbe-plant-animal interactions in human health, INSCR International conference (IIC-2017), University of Delhi, 26-28 September, 2017.

Workshop/Refresher Course Attended:

- Seminar-cum-Workshop on "Techniques in Molecular Biology" Department of Zoology, University of Allahabad, (March 16-18, 2008).
- Seminar-cum-Workshop on "Emerging Trends in Molecular Biology" Department of Zoology, University of Allahabad, (March 23- 25, 2009).
- UGC Sponsored Refresher Course in the subject **Information and Communication Technology (MD)** from 20-01-2012 to 09-02-2012, University of Allahabad.
- **Resource person** in INSPIRE SCIENCE CAMP, (Innovation in Science Pursuit for Inspired Reserach) DST Govt. of India, Shivaji College, University of Delhi, 2015, 2016.

Research Guidance (*Supervision of Doctoral Thesis/Dissertations*)

NA

Awards and Distinctions

Fellowships, Honours and Awards

Won **second best position** in poster competition in National seminar on water and air quality in urban ecosystem, Shivaji college, New Delhi, 22 march 2016.

2011: **Ph.D. (Doctorate degree),** University of Allahabad, India.

2007-2010: Ph.D. **Research Fellowship** (RF) awarded by University Grants Commission (UGC), Govt. of India.

2007: Qualified National level entrance examination Interview for PhD programme at Department of Zoology, University of Allahabad, India.

2008: Qualified **CSIR-NET** Exam in Life Sciences to attain Eligibility for Lecturership.

2003: Qualified "All India Combined Entrance Test" for admission in M.Sc. In Zoology programme conducted by the University of Allahabad, Allahabad, India.

Memberships

NA

Other Academic Activities

Technical Knowledge

Expertise in DNA Extraction, separation of DNA**,** PCR, RT-PCR

Polyacrylamide gel electrophoresis: for protein and DNA analysis

Agarose gel electrophoresis: for the detection of DNA

Raring and maintenance of Colonies of *Bactrocera* fruit flies, *Sarcophaga, Musca* and *Chrysomyia*, *Drosophila.*

Molecular Biology: Preparation of genomic DNA, Manipulation, recovery and resolution of DNA, Preparation of RNA from Eukaryotic organism.

UV-Vis Spectrophotometer: DNA quantification

PCR machine Handling

Gel documentation software

Sample preparation for gene sequencing

Light Microscope handling image analysis

Polytene chromosome preparation of many dipteran flies

Elisa reader handling

Cultural/Extracurricular Activities

Have been part of several cultural committees at College level

Rashmi Singh

Signature of Faculty Member