Dr Ravi Kumar Singh

Assistant Professor
University Department of Botany
Magadh University
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Curriculum Vitae

Area of Interest:

- Plant and Microbial Genomics and Genetics
- Bioinformatics and Genome Analyses
- Next-Generation Sequence Analyses

Employment:

- September, 2019 – current **Assistant Professor**
  University Department of Botany
  Magadh University, Bodhgaya, India
- May, 2018 – August, 2019 **Post-doctoral Researcher**
  Department of Plant Biology, Uppsala BioCentre,
  Swedish University of Agricultural Sciences (SLU)
  Uppsala, Sweden
- August, 2017 – April. 2018 **Assistant Professor**
  Department of Bioinformatics and Biotechnology
  SRM University Delhi-NCR, Haryana, India
- May, 2016 – July, 2017 **Research Associate**
  Department of Biological Sciences
  Indian Institute of Science Education and Research
  Kolkata, India
- May, 2013 – August, 2013 **Visiting Fellow**
  Department of Molecular Ecology
  Max Planck Institute for Chemical Ecology
  Jena, Germany
- January, 2010 – Dec, 2010 **Research Assistant**
  School of Information Technology
  Jawaharlal Nehru University
  New Delhi, India

Education:

- **Ph.D.** **Biological Sciences**
  Indian Institute of Science Education and Research Kolkata, India
  Major area: Plant Genomics and Molecular Evolution
- **M.Tech.** **Computational and Systems Biology**
  Jawaharlal Nehru University, New Delhi, India
  Major area: Bioinformatics and Computational Biology
- **M.Sc.** **Botany**
  Magadh University, Bodhgaya, India
  Major area: Cytogenetics

Awards and Distinctions:

- Selected as **mentor** (ID: CSIR/SRTP/2020/NEIST/M/215) for **CSIR-SUMMER RESEARCH TRAINING PROGRAM (CSIR-SRTP) 2020 ONLINE**
- **Post-doctoral Fellowship** from ***Carl Tryggers Foundation, Sweden***
- **Research Associateship** from '***Max Planck Germany – DST India Partner Group***'
- **Max Planck Society Visiting Fellowship** from '***Max Planck Germany – DST India Partner Group***'
- **Research Fellowship** from '***Max Planck Germany – DST India Partner Group***' for pursuing research in the area of plant genomics at *Max Planck Institute for Chemical Ecology, Jena, Germany* and *IISER Kolkata* from Oct, 2011 – April, 2016
- **Best poster award** at *BCGGR Conference* 2016, BITS Pilani and '1st Department Day - 2013', DBS, IISER Kolkata.
- **Qualified** in '***Joint CSIR-UGC National Eligibility Test for Lectureship****, Dec-2007'*
- ***DBT (Gov. of India)*** *and* ***UGC (Gov. of India) scholarships*** during M.Tech. (2007-2009)
- Achieved ***1st rank in M.Sc. final examination at University level*** (Magadh University)
- Life member of 'Biophysical Society of India' and 'The Indian Botanical Society'

Teaching:

List of courses and subjects taught

At Magadh University, Bodhgaya (continuing …)

- **Ph.D. and M.Sc. (Botany)**: Molecular Biology, Microbiology, Genetics, Plant Pathology, Environmental Biology, Scientific seminar and presentation
- **Ph.D. and M.Sc. (Environmental Science)**: Environmental Pollution, Natural Resources and Conservation, IPR
- **Ph.D. and M.Sc. (Biochemistry)**: Plant and Cellular Biochemistry

At SRM University Delhi-NCR, Haryana

- **M.Tech (Biotechnology)** and **B.Tech. (Bioinformatics)**: Genomics, Bioinformatics, Structure Biology, Immunoinformatics, Biophysics, Computer and Programming Language and its application

At IISER, Kolkata

- **Ph.D and B.S. (Biological Sciences, practical class)**: Plant and Microbial Genomics and Bioinformatics

Synergistic Activities:

- Member of **Academic Council & Committee** University Department of Botany, Magadh University, Bodhgaya
- **Reviewer** for the journals ***Bioinformatics*** (Oxford Journals; ISSN: 1460-2059), ***Genes*** (MPDI; ISSN: 2073-4425) and ***Plant Gene*** (ELSEVIER; ISSN: 2352-4073)
- Member of **Board of Studies (BoS)** (2018), SRM University Delhi-NCR, Haryana
- **Examiner and Evaluator** for Ph.D. M.Sc., B.Sc. and B.Tech. courses at Magadh University, Bodhgaya and SRM University, Delhi-NCR, Haryana

Publication List:

Published /accepted research articles / book chapters (peer reviewed)

- Zhen Liao, Kristian Persson Hodén, **Ravi Kumar Singh** & Christina Dixelius (2020). Genome-wide identification of Argonautes in Solanaceae with emphasis on potato. ***Scientific reports***, 10(1), 1-10. (DOI 10.1038/s41598-020-77593-y) **(Impact factor: 3.998)**
- **Ravi K Singh***, A Krishnamachari and Murali Sharaff (2020) Challenges of Small RNA Technology. ***Plant Small RNA: Biogenesis, Regulation and Application, Elsevier*** (Pages 545-565; DOI 10.1016/B978-0-12-817112-7.00024-9) (***Corresponding author**) (**Impact factor: NA**)
- Aura Navarro Quezada, Klaus Gase, **Ravi K. Singh**, Shree P. Pandey and Ian T. Baldwin (2020) What the *Nicotiana attenuata* genome tells us about the molecular machinery behind this plant's remarkable adaptive phenotypic plasticity. ***The Tobacco Plant Genome: Compendium of Plant Genomes, Springer*** *Cham* (pp 211-229; DOI 10.1007/978-3-030-29493-9_13) (**Impact factor: NA**)
- Taraka Ramji Moturu, Sravan Kumar Thula, **Ravi Kumar Singh**, Tomasz Nodzyński, Radka Svobodová Vařeková, Jiří Friml and Sibu Simon (2018) Molecular Evolution and Diversification of SMXL-Like Gene Family. ***Journal of Experimental Botany*** *(23;69(9):2367-2378; DOI 10.1093/jxb/ery097)* (**Impact factor: 5.90**)
- Maitree Pradhan, Murali Sharaff, Klaus Gase, **Ravi K Singh**, Avinash Sethi, Ian T. Baldwin, Shree P. Pandey (2017) Argonaute 8 (AGO8) mediates the elicitation of herbivore-induced direct defenses of *Nicotiana attenuata*. ***Plant Physiology*** *(*175(2): 927-946*; DOI 10.1104/pp.17.00702)* (**Impact factor: 5.95**)
- Shritama Aich[†], **Ravi K. Singh**[†], Pritha Kundu, Shree P. Pandey, Supratim Datta (2017) Genome-wide characterization of cellulases from the hemi-biotrophic plant pathogen, *Bipolaris sorokiniana*, reveals presence of a highly stable GH7 endoglucanase. ***Biotechnology for Biofuels****, 25:10, 135. (DOI 10.1186/s13068-017-0822-0*) (**[†]equally contributed first author**) (**Impact factor: 5.62**)
- **Singh R. K.**, and Pandey S. P. (2017) Phylogenetic and Evolutionary Analysis of Plant Argonautes. ***Methods in Molecular Biology*** vol 1640. Humana Press, New York, NY *(DOI 10.1007/978-1-4939-7165-7_20)* (**Impact factor: 10.71**)
- Choudhary, S. B., Kumar, M., Chowdhury, I., **Singh, R. K.**, Pandey, S. P., Sharma, H. K., & Karmakar, P. G. (2016). An efficient and cost effective method of RNA extraction from mucilage, phenol and secondary metabolite rich bark tissue of tossa jute (C. olitorius L.) actively developing phloem fiber. ***3 Biotech***, 6(1), 100. (10.1007/s13205-016-0415-9) (**Impact factor: 2.389**)
- Choudhary, S. B., Chowdhury, I., **Singh, R. K.**, Pandey, S. P., Sharma, H. K., Kumar, A. A., ... & Jambhulkar, S. J. (2017). Morphological, histobiochemical and molecular characterisation of low lignin phloem fibre (llpf) mutant of dark jute (Corchorus olitorius L.). ***Applied biochemistry and biotechnology***, 183(3), 980-992. (DOI 10.1007/s12010-017-2477-5) (**Impact factor: 2.277**)

- **Singh R. K.**, Gase K., Baldwin I. T., & Pandey S. P. (2015) Molecular evolution and diversification of the Argonaute family of proteins in plants. ***BMC Plant Biology*** *15:23; PMID:25626325. (DOI 10.1186/s12870-014-0364-6.* (Highly accessed; editor's choice) **(Impact factor: 4.494) (†first author)**
- **Singh R. K.**, & Pandey S. P. (2015) Evolution of structural and functional diversification among plant Argonautes. ***Plant Signaling & Behavior***, *10(10), e1069455. (DOI 10.1080/15592324.2015.1069455)* **(Impact factor: 1.671) (†first author)**
- Sinha Vishnu S., **Singh Ravi Kumar**, Kumar Nandjee, Mohanka R. (2005) Chromotoxic effect of *Ipomoea carnea* L. on *Vicia faba* L. **Modern J. of Life Sci**. Vol. 4 No 1-2 (2005) : 41-44 (**Impact factor: NA**)

Research articles (peer reviewed) at different stages of communication

- Sanjana Sharma, A Krishanamachari, N Subbarao and **Ravi K Singh*** (2021) Structural diversity of Argonaute protein across the domains of life. ***Computational and Structural Biotechnology Journal***. (In review) (***Corresponding author**) (**Impact factor: 6.018**)
- Reettika Sharma, Sanjana Sharma and **Ravi K Singh*** (2021) Analysis of interactions between seaweed based nutraceuticals and target protein using computational approach. ***Interdisciplinary Sciences: Computational Life Sciences*** (In review) (***Corresponding author**) (**Impact factor: 1.418**)
- **Ravi Kumar Singh*** & Rajesh Kumar Choudhary (2021) Comparative analysis of phytochemical constituents of some important medicinal plants of District Nalanda, Bihar. ***Research Journal of Agricultural Sciences*** (In review) (***Corresponding author)** (**NAAS Score: 4.54**)
- **Ravi Kumar Singh*,** Meena Kumari & Rajesh Kumar Choudhary (2021) Molecular relatedness among the medicinally important plants of Nalanda, Bihar. ***IARJSET*** (Accepted) (***Corresponding author)** (**Impact factor: NA**)
- **Ravi Kumar Singh** (2021) Structural, Functional and Evolutionary Insights into Argonaute Protein Family. ***Genomics***. (In revision) (***Corresponding author**) (**Impact factor: 3.16)**

Poster Presentation at Scientific Meetings / Conference / Symposia:

- **Ravi Kumar Singh** (2020) Structural, Functional and Evolutionary Insights into Argonaute Protein Family (Lecture presented at *Bihar Science Congress – 2020* held at Patna University, Patna on December 4, 2020)
- Meena Kumari, D K Yadav, **Ravi K Singh*** (2020) Molecular diversity among the medicinally important flora of Nalanda, Bihar. (Poster presented at *National Symposium on Trends in Plant Biotechnology and Agriculture & 41th Annual Meeting of the Plant Tissue Culture Association of India* held at Thapar Institute of Engineering and Technology, Patiala, India on February 6-8, 2020) (***Corresponding author**)
- Meena Kumari, **Ravi K Singh***, D K Yadav* (2019) Phytochemical diversity among the medicinal plants of district Nalanda, Bihar. (Poster presented at *'BioCosm-2019': National Conference on "Recent Advances and Current Trends in Biological Sciences"*, held at M S College, Motihari on November 11-12, 2019) (***Corresponding author**)
- Pradhan M., Pandey P., **Singh R.K.**, Gase K., Baldwin I.T., Pandey S.P. (2018). Functional diversity of Argonautes in modulating ecological interactions in *Nicotiana attenuata*. (Poster presented at *Institute Symposium, at MPI für Chemische Ökologie, Jena, DE* held on 28-29 November, 2018)
- Sanjana Sharma, Annangarachari Krishanamachari, Naidu Subbarao and **Ravi Kumar Singh*** (2018) Evolutionary expansion and molecular diversity in the Argonaute

protein family. (Poster presented at *17th International Conference On BioInformatics (InCOB-2018)*, held on 26-28 September, 2018 at Jawaharlal Nehru University (JNU), New Delhi) (***Corresponding author**)

- Dhananjay Sharma and **Ravi Kumar Singh*** (2018) Comparative sequence analyses of 'Viral Protein R Binding Protein (VprBP)' among metazoans. (Poster presented at *42nd Annual Meeting of the Indian Biophysical Society on "Emerging trends in Biophysics"* held on 9-11 March, 2018 at IISER Pune) (***Corresponding author**)
- Avinash Sethi, Maitree Pradhan, **Ravi K Singh**, Murali Sharaff, Klaus Gase, Ian T Baldwin, Shree P Pandey (2017) Engineering small RNA pathways that regulates plant defense against insect and pathogen attack. (Poster presented at *National Symposium on "Advances in Life Sciences"*, at DBS, IISER Kolkata)
- Pritha Kundu, Avinash Sethi, Maitree Pradhan, Ranabir Sahu, **Ravi K. Singh**, Aundy Kumar, Vinod K. Mishra, Ramesh Chand, Apurba K. Chowdhury, Arun K. Joshi, Shree P. Pandey (2017) Unravelling defense mechanisms during plant-pathogen interactions in bread wheat (*Triticum aestivum*). (Poster presented at *National Symposium on "Advances in Life Sciences",* DBS, IISER Kolkata)
- Maitree Pradhan, Murali Sharaff, **Ravi K Singh**, Ian T Baldwin, Shree P Pandey (2016) Engineering a small RNA pathway that regulates plant defenses against insect attack. (Poster presented at *BCGGR Conference 2016*, BITS Pilani). (**Best poster award**)
- **Ravi K Singh** et al., (2016) An 'omics' approach to understandsmall-RNA mediated gene regulation in plants. (Poster presented at *NNMCB Workshop 2016*, IISER Kolkata)
- **Ravi K Singh**, Maitree Pradhan, Murali Sharaff, Shree P Pandey (2015) Rewiring a small-RNA pathway that modulates adaptation of plants to insect attack. (Poster presented at *'Biologia 2015'*, DBS Department Day, IISER Kolkata)
- Ranabir Sahu, Avinash Sethi, Murali Sharaff, Maitree Pradhan, **Ravi K Singh**, Pritha Kundu, Debasis Sardar, Shree P Pandey (2015) Unravelling wheat genomics for plant stress adaptation and crop improvement. (Poster presented at *'Biologia 2015'*, DBS Department Day, IISER Kolkata)
- **Ravi K Singh**, Taraka Ramji M, Avinash Sethi, Shree P Pandey (2013) An 'omics' guide to smallRNA-target interaction. (Poster presented at *'1st Department Day'*, DBS, IISER Kolkata). (**Best poster award**)
- Divya Sahu, **Ravi K Singh**, Gaurav K Baruah, Nidhi Sharma, Sangita Saha, Supratim Datta, Shree P Pandey (2013) smallRNA in Bacteria: Compilation, Functional Evaluation & Evolutionary Parallels. (Poster presented at *'1st Department Day'*, DBS, IISER Kolkata)
- Shree P Pandey and **Ravi K Singh** (2012) A highly conserved protein in bacteria may affect sRNA regulation similar to AGO in eukaryotes. (Poster presented at *'Cell Symposia: Functional RNAs'*, Hotel Melia, Sitges, Spain)

Administrative duties undertaken:

- **OSD** (Technical Course & Online Degree) Examination Department, Magadh University, Bodhgaya: November, 2020 – Continue.
- **Hostel Superintendent**, Minority Hostel No. 2, Magadh University, Bodhgaya: June, 2020 – Continue.
- **Hostel Superintendent**, Hostel No. 3, Magadh University, Bodhgaya: January, 2020 – May, 2020.
- Student Advisory Committee Member, SRM University Delhi-NCR, Haryana: September, 2017 – April, 2018.

Website address:

At Google Scholar, At ResearchGate, ORCID ID: ORCID

Date: 10/02/2021