



ICAR-National Bureau of Fish Genetic Resources

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Name
Designation
Professional experience
Qualification (PG and above)

Dr Rajeev K. Singh
Senior Scientist
17 Years
M.Sc. (Biochemistry)
M.Tech. (Biotechnology)
Ph.D (Biotechnology)



Link to Google Scholar Page

<https://scholar.google.co.in/citations?hl=en&user=CPD-TiQAAAAJ>

Current area of Research

- ✦ **Development of genomic resources:** Development of Protein, mitochondrial and microsatellite markers for eleven fish species. Microsatellite markers were developed through genomic library approach as well as cross transferability. These markers are useful for variety of applications including genetic stock identification. As many as seven mitochondrial genomes were fully sequenced which can be applied for evolutionary and comparative genomics.
- ✦ **Stock characterization** for 12 fish species was done through use of generated molecular markers and applied to describe intra-specific genetic diversity in their native distribution range. The information will be used by India to fill in AqGR Questionnaire for global status report.
- ✦ **Discovered fish species, New to Science:** Genetic and morphometric studies confirmed *Pangasius silasi* (river Krishna) and *Rita bakalu* (Godavari) as new species. Re-discovered & described *L. rajasthanicus* with designation of a neotype. Resolved taxonomic ambiguity of *S. sarana subnautus* and confirmed as a distinct species.

Area of Research Expertise

- ✦ Development of molecular markers for intra-specific genetic diversity of fishes
- ✦ Genetic stock structure of important fish species
- ✦ Sequencing of whole genome/transcriptome and mitochondrial genome
- ✦ Construction of enriched microsatellite genomic library
- ✦ Phylogenetic reconstruction of catfishes and Indian Mahseers

Awards/ Recognitions (only National and International)

Dr Hiralal Chaudhary Best Young Scientist conferred by Dr. Hiralal Choudhuri Fisheries Foundation at ICAR-Central Institute of Fisheries Education, Mumbai in 2015.

Publication (no.)

- **Research papers** 57
- **Reviews** Nil
- **Books** Nil

- **Book Chapters** Nil
- **Popular articles** 3
- **Others Databases CD-ROM Training Manual** Nil

Important Research Publications

Lal, Kuldeep K., Arvind K. Dwivedi, **Rajeev K. Singh**, Vindhya Mohindra, Suresh Chandra, BrajKishor Gupta, Smita Dhawan; J.K. Jena (2016). A new Bagrid catfish species, *Rita bakalu* (Siluriformes: Bagridae), from the Godavari River basin, India" *Hydrobiologia*. doi:10.1007/s10750-016-3019-9

Yadav, Prabhaker, Ratnesh K. Tripathi, **Rajeev K. Singh**, Vindhya Mohindra (2016) Expression profile and *in silico* characterization of Novel *RTF2h* gene under oxidative stress in Indian catfish, *Clarias magur* (Hamilton 1822). *Molecular Biology Reports* DOI:10.1007/s11033-016-4081-0

Anindya S. Barman, Mamta Singh, **Rajeev K. Singh**, Kuldeep K. Lal (2016). Evidence of birth-and-death evolution of 5S rRNA gene in *Channa* species (Teleostei, Perciformes). *Genetica*, 144:723–732

Mohindra, V., R.K. Tripathi, A. Singh, R. Patangia, **Rajeev K. Singh**, Kuldeep K. Lal, and J. K. Jena, (2016). Hypoxic stress -responsive genes in air breathing catfish, *Clarias magur* (Hamilton 1822) and their possible physiological adaptive function. *Fish and Shellfish Immunology*. 59, 46-56

Lal, Kuldeep K., **Rajeev K. Singh**, Vindhya Mohindra, J.K. Jena and Roger W Doyle (2016). Molecular traceability of spatial genetic diversity for sustainability for fish genetic resources: A perspective for India. *Indian Journal of Plant Genetic Resources*, 29 (3): 385-387.

Mohindra, Vindhya, **Rajeev K. Singh**, Ratnesh Kumar Tripathi, Kuldeep Kumar Lal & J. K. Jena (2016) Complete mitogenome of Indian mottled eel, *Anguilla bengalensis* (Gray, 1831) through PacBio RSII sequencing (Mitogenome Announcement). *Mitochondrial DNA: The Journal of DNA Mapping, Sequencing, and Analysis* DOI:10.3109/19401736.2015.1115858 (in press).

Sangeeta Mandal, J. K. Jena, **Rajeev K. Singh**, Vindhya Mohindra, W. S. Lakra, Geetanjali Deshmukhe, Abhinav Pathak and Kuldeep K. Lal (2016) *De novo* development and characterization of polymorphic microsatellite markers in a silurid catfish, *Silonia silondia* (Hamilton, 1822) and their validation for population genetic studies. **Molecular Biology Reports**, DOI 10.1007/s11033-016-3941-y

Rajeev K. Singh, Vindhya Mohindra, Abhinav Pathak, Kuldeep K. Lal, and J. K. Jena (2015) Complete sequence and characterization of mitochondrial genome in great snakehead, *Channa marulius* (Hamilton, 1822). **Mitochondrial DNA** June 2015, Vol. 26 No. 3, 473-474.

Mohindra, Vindhya, Ratnesh K. Tripathi, **Rajeev K. Singh** and Kuldeep K. Lal (2015) Molecular characterization and transcriptional profile of three heat shock protein genes (Hsc71, Hsp90 α and Hsp10) in hypoxia tolerant Indian Catfish, *Clarias batrachus* (Linnaeus, 1758) under experimental and natural hypoxia. **Molecular Biology Reports**, 42(7):1197-209.

Rajeev K. Singh, Kuldeep K. Lal, Vindhya Mohindra, R. S. Sah, Rajesh Kumar and J.K Jena, **2016**. Mapping of Genetic Diversity in Wild *Labeo calbasu* (Hamilton, 1822) using Mitochondrial ATPase 6/8 Genes. *Mitochondrial DNA* Volume 27 (5) 3078-3081

Mandal S., J. K. Jena, **Rajeev K. Singh**, Vindhya Mohindra, W. S. Lakra, Geetanjali Deshmukhe, Rajesh Kumar, and Kuldeep K. Lal, **2016**. Genetic characterization of Silond catfish, *Silonia silondia* (Hamilton, 1822) inferred from two mitochondrial markers **Mitochondrial DNA**, 27, (2) 1075-1079.

- Mohindra, Vindhya, **Rajeev K. Singh**, Rajesh Kumar, R. S. Sah and Kuldeep K. Lal. (2015) Genetic divergence in wild population of endangered yellowtail *catfish Pangasius pangasius* (Hamilton-Buchanan, 1822) revealed by mtDNA. **Mitochondrial DNA**. 26 (2) 182-186
- Mohindra, Vindhya , **Rajeev K. Singh**, Rajesh Kumar, R. S. Sah and Kuldeep K. Lal (2013) Complete mitochondrial genome sequences of two endangered Indian catfish species, *Clarias batrachus* and *Pangasius pangasius*. **Mitochondrial DNA** 26(5), 678-679
- Lal, Kuldeep K, **Rajeev K. Singh**, Ajay Pandey, Braj K Gupta, Vindhya Mohindra, Peyush Punia, Smita Dhawan, Jyoti Verma, L.K.Tyagi, Praveen Khare and Joykrushna Jena (2012) Distribution Records of Tor Mahseer *Tor tor* (Hamilton, 1822) in the Southern India. **Journal of Applied Ichthyology** 29 (5), 1086-1090
- Gupta A, Lal K K, Punia P, **Singh Rajeev K**, Mohindra V, Sah R S, Kumar R, Luhariya RK, Dwivedi K, Masih P Mishra RM, Jena JK (2013) Characterization of polymorphic microsatellite markers and genetic diversity in wild bronze featherback, *Notopterus notopterus* (Pallas, 1769) **Molecular Biology Reports** DOI 10.1007/s11033-013-2776-z
- Rajeev K. Singh**, Kuldeep K. Lal, Vindhya Mohindra, Peyush Punia, R. S. Sah, Rajesh Kumar, Arti Gupta, Rakhi Das, W. S. Lakra and S. Ayyappan (2012) Genetic diversity of Indian Major Carp, *Labeo calbasu* (Hamilton, 1822) populations inferred from microsatellite loci. **Biochemical Systematics and Ecology**, 44, 307-316
- Kuldeep K Lal, **Rajeev K. Singh**, Ajay Pandey, Braj K Gupta, Vindhya Mohindra, Peyush Punia, Smita Dhawan, Jyoti Verma, L.K.Tyagi, Praveen Khare and Joykrushna Jena (2012) Distribution Records of Tor Mahseer *Tor tor* (Hamilton, 1822) in the Southern India. **Journal of Applied Ichthyology** DOI: 10.1111/jai.12017
- Rajeev K. Singh**, Kuldeep K. Lal, Vindhya Mohindra, Peyush Punia, Rama S. Sah, Akhilesh K. Mishra, Rajesh Kumar, B. N. Mishra and W S Lakra (2010) Assessing genetic differentiation in geographic populations of *Labeo calbasu* (Hamilton, 1822) using allozyme markers. **Biochemical Genetics** 48, (9), 760-778
- Rajeev K. Singh** and Kuldeep K. Lal (2008). Identification of polymorphic allozyme markers in Golden Mahseer *Tor putitora*. **Fishery Technology** 45(1) 95-102
- Rajeev K. Singh**, Kuldeep K. Lal, Vindhya Mohindra, Peyush Punia and Wazir S. Lakra (2008) Cross-species amplification of microsatellite loci in the cyprinid fish, *Labeo calbasu* (Hamilton, 1822) **Acta Zoologica Sinica** 54(5): 937-940.
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- Kuldeep K. Lal, **Rajeev K. Singh**, Vindhya Mohindra, Anup Mandal, Peyush Punia, B. N. Mishra and W. S. Lakra (2007) Molecular detection of a *Labeo calbasu* x *Labeo rohita* hybrid, from the river Ganges, **Acta Zoologica Sinica** 53(4) 773-776
- Mohindra, Vindhya, **Rajeev K. Singh**, M. Palanichamy, A. G. Ponniah, and Kuldeep K. Lal, (2007) Genetic Identification of three species of genus *Clarias* using allozyme and mitochondrial DNA markers. **Journal of Applied Ichthyology**. 1,104-109
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