




ICAR-National Bureau of Fish Genetic Resources

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Name	Dr. (Mrs.) Vindhya Mohindra	
Designation	Principal Scientist and Head, Fish Conservation Division	
Professional experience	25 years	
Qualification	M.Sc. (Genetics), Ph.D. (Genetics), PDF (JNU, New Delhi), PDF (NRC-IMB, Halifax , Canada)	
Current area of Research	Development of genomic resources for utilization in genetic differentiation of wild fish populations. Whole genome sequencing of important fish and fish pathogens. Signatures of natural selection in the fish genome.	
Area of Research Expertise	Conservation Genetics and genomics Resolving taxonomic ambiguities, Species validation and Phylogenetic relationship . Bio-prospecting of genes for important traits.	
Awards/ Recognitions	<p>2014 : Best research group for the year 2013-14 (NBFGR Annual Awards) to Fish Conservation Genomics Group, myself as Leader of the research group.</p> <p>2012 : M. S. Swaminathan Award for Best Indian Fisheries Scientist conferred by Professional Fisheries Graduates Forum, Mumbai.</p> <p>2010 : Best Scientist of ICAR-NBFGR Award, ICAR-NBFGR, Lucknow.</p> <p>2008 : DBT Overseas Associateship -2006 at NRC-Institute for Marine Biosciences, Halifax , Canada from March- September, 2008.Worked on Gene Expression and Genome Mapping Studies in Fishes.</p> <p>2005 : Fellowship of ISEP by International Society for Environmental Protection (ISEP) Gorakhpur.</p> <p>2001: Young Scientist of the Year by ISEP Science Academy, Gorakhpur.</p>	
Ph. D. students guided	6 completed and 2 ongoing	
Publication (no.)	<ul style="list-style-type: none"> • Research papers 88 • Reviews 1 • Books - • Book Chapters - • Popular articles 1 • Others 2 	

Important Research Publications of last 10 years

Mohindra, Vindhya, Rajeev Kumar Singh, Ratnesh Kumar Tripathi, Kuldeep Kumar Lal and J. K. Jena (2016) Complete mitogenome of Indian mottled eel, *Anguilla bengalensis 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.

Kumar, Raj, A. Gopalakrishnan, P. R. Divya, V. S. Basheer, Rajeev K. Singh, **Vindhya Mohindra**, Kuldeep K. Lal & J. K. Jena (2016) Population genetic structure of *Macrobrachium rosenbergii* (Palaemonidae) from Indian waters using mitochondrial ATPase6/8 gene. Mitochondrial DNA Part A DNA Mapping, Sequencing, and Analysis. <http://dx.doi.org/10.3109/24701394.2016.1149829>

Lakra, WS, Singh M, M Goswami, A Gopalakrishnan, KK Lal, **V. Mohindra**, UK, Sarkar, PP , Punia, KV , Singh, JP , Bhatt, S , Ayyappan (2016) DNA barcoding Indian freshwater fishes. Mitochondrial DNA: The Journal of DNA Mapping, Sequencing, and Analysis, 24 DOI:10.3109/19401736.2015.1101540 in press.

Mandal, Sangeeta, 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 schilbid catfish, *Silonia silonia* (Hamilton, 1822) and their validation for population genetic studies. Molecular Biology Reports 43 (2): 91-98.

Mohindra, Vindhya, Ratnesh K. Tripathi, Prabhaker Yadav, Rajeev K. Singh and Kuldeep K. Lal (2015) Hypoxia induced altered expression of heat shock protein genes (Hsc71, Hsp90a and Hsp10) in Indian Catfish, *Clarias batrachus* (Linnaeus, 1758) under oxidative stress. Molecular Biology Reports, Molecular Biology Reports , 42:1197–1209.

Lal, Kuldeep K., Braj K. Gupta, Peyush Punia, **Vindhya Mohindra**, Ved P. Saini, Arvind K. Dwivedi, Rajeev K. Singh, V. S. Basheer, Smita Dhawan, Rupesh K. Luhariya, and J. K. Jena (2015). Revision of gonius subgroup of the Genus Labeo Cuvier, 1816 and confirmation of species status of *Labeo rajasthanicus* (Cypriniformes: Cyprinidae) with designation of a neotype. Indian Journal of Fisheries, 62(4): 10-22, 2015.

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):182-6, DOI: 10.3109/19401736.2013.861455.

Khare, Praveen , **Vindhya Mohindra** , Anindya S Barman, Rajeev K Singh and Kuldeep Kumar Lal (2014) . Molecular Phylogenetic Evidence to Reconcile Taxonomic Instability in Mahseer Species (Pisces: Cyprinidae) of India. Organisms Diversity and Evolution, 14 (3): 307-326.

Barman, Anindya, Kuldeep Lal, Gaurav Rathore, **Vindhya Mohindra**, Rajeev Singh, Akanksha Singh, Praveen Khare, Bechan Lal (2014). Derivation and Characterization of a ES like Cell line from Indian catfish *Heteropneustes fossilis* Blastula. The Scientific World Journal, 2014, Article ID 427497, 9 pages.

Mohindra, Vindhya, Ratnesh K. Tripathi, Prabhaker Yadav, Rajeev K. Singh and Kuldeep K. Lal (2014) Hypoxia influences expression profile of Pleckstrin homology-like domain, family A, member 2 in Indian catfish, *Clarias batrachus* (Linnaeus, 1758): A new candidate gene for hypoxia tolerance in fish. Journal of Biosciences, 39(3): 433-442.

Tyagi, L K, Braj K Gupta, Ajay Pandey, Amit S Bisht, Kuldeep K. Lal, Peyush Punia, Rajeev K Singh, **Vindhya Mohindra**, J K Jena (2014) Length-weight relationships and condition factor of snow trout, *Schizothorax richardsonii* (Gray, 1832) from three diverse Himalayan rivers in India. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences 84 (2): 299-304.

Gupta, Arti, Kuldeep Kumar Lal, Peyush Punia, Rajeev K Singh, **Vindhya Mohindra**, Rama S Sah, Rajesh Kumar, Rupesh K Luhariya, Arvind K Dwivedi, Prachi Masih , R M Mishra, J K Jena (2013) Characterization of Polymorphic Microsatellite Markers and Genetic Diversity in Wild Bronze Featherback, *Notopterus notopterus* (Pallas, 1769). Molecular Biology Reports, 40(12):6625-6631.

Mohindra Vindhya, Ratnesh Kumar Tripathi , Rajeev Kumar Singh and Kuldeep K. Lal (2013) Molecular characterization and expression analysis of three hypoxia-inducible factor alpha subunits, HIF-1 α , -2 α and -3 α in hypoxia-tolerant Indian catfish, *Clarias batrachus* [Linnaeus, 1758]. Molecular Biology Reports, 40 (10): 5805-5815.

Mohindra, Vindhya, Ratnesh K. Tripathi, Akanksha Singh and Balvinder Singh (2013) Molecular Characterization and expression analysis of a novel Cystatin-like gene in a hypoxia-tolerant Indian catfish, *Clarias batrachus* [Linnaeus, 1758].

Fish and Shellfish Immunology. 34: 683-687.

Singh, Akanksha, A. S. Barman, Neeraj Sood and **Vindhya Mohindra** (2013). Transcriptome generation and analysis of spleen from Indian catfish, *Clarias batrachus* (Linnaeus, 1758) through normalised cDNA library. *Molecular Biology Reports*, 40 (12):6965-75.

Mohindra, Vindhya, Akanksha Singh, Ruchi Patangia, Ratnesh K. Tripathi, Rajeev K. Singh, Rama Shankar Sah and Kuldeep K. Lal (2012) Characterization of 27 novel gene-associated SSR markers in Indian catfish, *Clarias batrachus* (Linnaeus, 1758) and their application in genetic diversity analysis. *Molecular Ecology Resources*, 12, (6): 1196–1197.

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.

Singh, A., N. Sood, and **Vindhya Mohindra** (2012). EST-based identification of Immune-Relevant Genes from Indian catfish, *Clarias batrachus*. *GENE*, 502(1): 53-59

Mohindra, Vindhya, Akanksha Singh, A. S. Barman, Ratnesh Tripathi, Neeraj Sood and Kuldeep K. Lal. (2012). Development of EST derived SSRs and SNPs as a genomic resource in Indian catfish, *Clarias batrachus*. *Molecular biology reports* 39(5):5921-31.

Das, Rakhi, **Vindhya Mohindra**, Rajeev K. Singh, Kuldeep K. Lal, Peyush Punia, Prachi Masih, R. M. Mishra and W. S. Lakra (2012) Intraspecific Genetic Diversity in Wild *Catla catla* (Hamilton, 1822) : Population Assessed through mtDNA Cytochrome b Sequences. *Journal of Applied Ichthyology* 28(2): 280-283.

Muneer, P. M. Abdul, A. Gopalakrishnan, K. K. Musammilu V. S. Basheer, **V. Mohindra**, K. K. Lal, K. G. Padmakumar and A. G. Ponniah (2011). Comparative Assessment of Genetic Variability in the Populations of Endemic and Endangered Yellow Catfish, *Horabagrus brachysoma* (Teleostei: Horabagridae), Based on Allozyme, RAPD, and Microsatellite Markers *Biochemical Genetics* 50(3-4):192-212 DOI 10.1007/s10528-011-9462-4.

Mandal; Anup, **Vindhya Mohindra**, Rajeev K. Singh; Peyush Punia and Kuldeep K. Lal (2011) Mitochondrial DNA variation in Indian populations of endangered Feather-Back Fish, *Chitala chitala* *Molecular Biology Reports*, , 39(2): 175-1775.

Saini, Archana Anish Dua, **Vindhya Mohindra** and W. S. Lakra (2011) Molecular Discrimination of six species of Bagrid catfishes from Indus river system using randomly amplified polymorphic DNA markers. *Molecular Biology Reports* Volume 38(5): 2961.

Lakra, W S, M S Verma, M Goswami, K K Lal, **V. Mohindra**, P Punia, A. Gopalakrishnan, K V Singh, R D Ward and Paul Hebert (2011) DNA Barcoding Indian Marine Fishes. *Molecular Ecology Resources*, 11(1): 60–71.

Murray, Harry M., Santosh P. Lall, Rajesh Rajaselvam, Lee Anne Boutilier, Brian Blanchard, Robert M. Flight, Stefanie Colombo, **Vindhya Mohindra**, Susan E. Douglas (2010) A nutrigenomic analysis of intestinal response to partial soybean meal replacement in diets for juvenile Atlantic halibut, *Hippoglossus hippoglossus*, L. *Aquaculture* 298:282–293.

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Lal, Kuldeep K., Anindya S. Barman, Peyush Punia, Praveen Khare, **Vindhya Mohindra**, Bechan Lal, A. Gopalakrishnan, Rama. S. Sah and Wazir S. Lakra. (2009) Effect of extender composition on sperm cryopreservation of Asian catfish *Heteropneustes fossilis* (Bloch) and *Clarias batrachus* (Lin). *Asian Fisheries Science* 22 (1): 137-142

Saini, A., Dua, A., and **Mohindra, V.** (2009). A morphometric study of giant river catfish (*Sperata seenghala*) population in Maharana Pratapsagar Lake of Pong Dam. *Ecology, Environment and Conservation*, 15(4):857-862.

Mohindra, Vindhya, Rajeev K Singh, Peyush Punia, Hari Shankar Gupta, Kuldeep K Lal, Akhilesh Mishra, Rajesh Kumar,

Ramashankar Shah and W S Lakra, (2008) Isolation and characterization of polymorphic microsatellites in yellow catfish, *Pangasius pangasius* (Hamilton, 1822). *Molecular Ecology Resources*, 8 (4): 864-866.

Chauhan, Tanya, Kuldeep K Lal, **Vindhya Mohindra**; Rajeev K Singh; Peyush Punia; A Gopalakrishnan; P C Sharma; Wazir S Lakra (2007) Genetic differentiation in the population of Indian major carp, *Cirrhinus mrigala* (Hamilton-Buchanan,1882): evidence from allozyme and microsatellite markers. *Aquaculture* 269: 135–149.

Mohindra, Vindhya, Praveen Khare, Kuldeep K. Lal, Peyush Punia, Rajeev K. Singh, Anindya Sundar Barman and W. S, Lakra (2007). Molecular discrimination of five Mahseer species from Indian peninsula, by RAPD analysis. *Current Zoology (Formerly Acta Zoologica Sinica)* 53 (4):725 - 732.

Lakra, W. S., **Vindhya Mohindra** and Kuldeep K. Lal (2007). Fish genetics and conservation research in India: status and perspectives. *Fish Physiology and Biochemistry*, 33(4): 475-487.