



Dr. Sudhansu Sekhar Mishra

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Department	Fish Health Management Division
Institute/University	Central Institute of Freshwater Aquaculture (<i>Indian Council of Agricultural Research</i>)
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Date of Birth	20 th June, 1963
Sex	Male
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Qualification				
Exam/Degree/ Diploma	Institute/ Board/ University	Year	Subject(s) with major field	Class/ Division/ Grade/ %marks
Graduation (BVSc. & AH.)	OUAT, Bhubaneswar	1986	B.V.Sc. & A.H. Degree course	First class (3.17/4.00) (79%)
Masters (M.V.Sc. in Microbiology)	Indian Veterinary Research Institute (Deemed University), Izatnagar, UP	1988	Microbiology, Virology, Immunology	First class (3.56/4.00) (89%)

Ph. D (Virology)	Indian Veterinary Research Institute (Deemed University), Izatnagar, UP	1989-94	Virology, Bacteriology, Genetics	First class (3.57/4.00) (89.25%)
Post-Doctoral	University of Minnesota, Minneapolis-St. Paul, USA	2008	Molecular Diagnostics & Genotyping of Microbes	-----

Honors/ Awards/ Scholarships and Distinctions:

Name of the Award/Recognition	Awarding organization (Place/ country)	Year
Fellowship of Bioved Research Society, Allahabad, Uttar Pradesh, India	Bioved Research Society, Bioved Research Institute of Agriculture & Technology, Allahabad, Uttar Pradesh, India	2010-11
Fellowship of Society of Biological Sciences & Rural Development (SBSRD), Allahabad	Society of Biological Sciences & Rural Development (SBSRD), Allahabad, Uttar Pradesh, India	2011
DBT Overseas Associateship Award for 2006-07	Dept. of Biotechnology, Min. of Science & technology, govt. of India, New Delhi	2007-08
Selected as Member of New York Academy of Sciences, USA, 2008	New York Academy of Sciences, USA	2008
Jawaharlal Nehru Award	Indian Council of Agricultural Research (ICAR), Dept. Agri. Research & Education, Min. of Agriculture, New Delhi	1995
R. Eswaram Memorial Award	Indian Veterinary Association, Chennai	1995
Best Poster award	Indian Science Congress Association, Kolkata	1999

Employment record:				
Designation	Pay Scale	Organization	Institution & place of posting	Period (From – to)
Scientist	2200-75-4000	ICAR	CIBA, Chennai (T.N)	Nov. 1991- May 1999
Scientist (Senior Scale)	10000-325 -15200	ICAR	NRC of CIBA, Kakdwip, South 24-pragana (W.B)	May-1999 to March 2000
Senior Scientist	12000-420-18300 Rs. 37400-67000 +AGP 9000	ICAR	CIFRI, Barrackpore, Kolkata (W.B) ”	March 2000 - 1 Dec. 2005 Jan. 2006 - Mar, 2008
Principal Scientist	Rs. 37400-67000 +AGP 10.000	ICAR	Allahabad Regional Centre of CIFRI, Allahabad (UP)	Mar, 2008- 4th July 2013
Head of Division	Rs. 37400-67000 +AGP 10.000	ICAR	Central Institute of Freshwater Aquaculture, Bhubaneswar	5th July 2013 – till date

Areas of specialization	Isolation, identification and characterization of bacterial and viral pathogens of fish & shellfish, Immunodiagnosics and Molecular diagnostics. Aquatic microbiology, microbial diversity and molecular typing of bacteria.
Brief Research Achievements	Involved in various projects relating to fish health monitoring and management both in culture and open-water ecosystems. Worked on isolation, identification and characterization of different bacterial and viral pathogens and development and application of immunological and molecular techniques for rapid disease diagnosis. Molecular diagnostic tests like Polymerase chain reaction (PCR), DNA probe based Dot blot hybridization using isotopic and non-isotopic labels were developed and used for rapid detection of WSSV, Vibrio parahaemolyticus, V. cholerae, Salmonella and Aeromonas species.

	<p>Enzyme linked immunosorbent assay (ELISA) and Dot-immunoassay (DIA) were standardized and used for detection of <i>V.parahaemolyticus</i>, <i>Aeromonas hydrophila</i> and WSSV. Genomic characterization of pathogens using DNA restriction fragment (RE) profile, plasmid-RE profile and Randomly amplified polymorphic DNA (RAPD) based PCR was studied. Molecular typing methods like RAPD, ERIC-PCR, REP-PCR were used for genomic characterization <i>Aeromonas spp.</i> PCR was used for detection of <i>Aeromonas spp.</i> and <i>A.hydrophila</i> using ‘aerolysin’ gene aer and ‘cytotoxic hemolysin’ gene ahycto as target genes. Microbial diversity was studied using 16SrDNA sequence analysis.</p>
Details of membership of professional societies	<ul style="list-style-type: none"> a) Life member of Indian Science Congress Association, Kolkata b) Life member of Indian Association of Veterinary microbiologists, Immunologists and specialists in infectious diseases (IAVMI) c) Life member of Indian Association of Advancement in Veterinary Sciences (IAAVR) d) Life member of Indian Virological Society e) Life member of Association of Aquaculturists f) Life member of Indian Veterinary Association g) Life member of Indian Association of Veterinary Immunology & Biotechnology h) Life member of Inland Fisheries Society of India (IFSI) i) Life Member of Bioved Research Society, Allahabad j) Life Member of Society of Biological Sciences & Rural Development (SBSRD), Allahabad

Total Number of Publications		
1.	Full length research papers in referred journals only	25
2.	Popular articles	8
3.	Papers in proceedings	32
4.	Books/ Book chapters	8

5.	Manuals/teaching aids developed	4
6.	Research bulletins/ extension bulletins	2
7.	Papers presented in Symposia & conferences	43
Total		122

**SELECTED LIST OF
PUBLICATIONS OF
DR. S. S. MISHRA**

Mishra, S.S., and Mallick, B.B., 1995. Genomic restriction fragment analysis of fowl pox virus vaccine strain and field isolates using EcoRI, Sal I and Pst I restriction endonucleases. *Indian J. Anim. Sci.*, 65 (12) : 1-6.

Mishra, S.S., and Mallick, B.B., 1996a. Comparative immunological and genomic characterization of fowl pox virus isolates. *Indian J. Exp. Biol.*, 34(1) : 11-17.

Mishra, S.S., and Mallick, B.B., 1996b. Fowl pox structural proteins, immunogens and characterization of single band polypeptide. *Indian J. Exp. Biol.*, 34 : 311 – 316.

Mishra, S.S., and Mallick, B.B., 1996c. Restriction fragment analysis of fowl pox virus using Bgl I, BamHI, Hha I and Sma I restriction endonucleases. *Indian J. Exp. Biol.*, 34 : 959-963.

Mishra, S.S., and Mallick, B.B., 1997. Soluble antigen and restriction fragment pattern of fowl pox virus. *Indian Vet. J.*, 74 : 13-18.

Mishra, S.S., and Mallick, B.B., 1997. Detection of fowl pox virus using immunoperoxidase and fluorescent antibody technique. *Indian Vet. J.*, 74 : 199 – 202.

Mishra, S.S., and Mallick, B.B., 1997. Application of Dot immunoassay and Enzyme linked immunosorbent assay for diagnosis of fowl pox. *Indian Vet. J.*, 74 : 284 – 287.

Mishra, S.S., and Shekhar, M.S. 1997. Enzymelinked immunosorbent assay and Dot immunoassay for detection of *Vibrio* sp. in tiger shrimp *Penaeus monodon*. *Indian J. Fish. Sci.*, 44 : 369 – 376.

Mishra, S.S., 1998. Use of dot immunoassay for rapid detection of pathogenic *Vibrio* sp. and *Aeromonas* sp. in shrimps and fishes. *Indian J. Mar. Sci.*, 27 : 222-226.

Azad, I.S., Shekhar, M.S., Mishra, S.S., Santiago, T.C., and Rao, L.H., 2002., Detection of WSV specificity to different tissues of tiger shrimp (*Penaeus monodon*) from the east-coast of India, by polymerase chain reaction and histopathology. *J. Aqua. Tropics*, 17(3)

: 175-184.

Mishra, S.S. and Shekhar, M.S., 2005. White spot syndrome virus isolates of tiger shrimp *Penaeus monodon* (Fabricious) in India are similar to exotic isolates as revealed by polymerase chain reaction and electron microscopy. *Indian J.Exp. Biol.*, 43 : 654-661.

Mishra, S.S., Shekhar, M.S. and Azad, I.S., 2005. Concurrent infection with WSSV and MBV in tiger prawn, *Penaeus monodon* (Fabricious) in West Bengal and their detection using PCR and DNA dot-blot hybridization technique. *Indian J. Biotechnology.*, 4 : 506-515.

Mishra, S.S., Mishra, S.K. and Ramdass, P., 2006. Detection of *Vibrio cholerae* in food samples using PCR amplified DNA probe and hybridization technique, *Indian Vet. Journal*, 939-943.

Mishra, S.S., and Shekhar, M.S., 2006. Surveillance and detection of white spot syndrome virus (WSSV) and Monodon baculo virus (MBV) in different prawn farms in Orissa and West Bengal using PCR technique and pathological studies. *Indian J. Animal Science*, 76 (2) : 174-181.

Mishra, S.S., Brahmane, M.P., Maurye, P., Mali, P., Dutta, C., and Das, M.K., 2006. Detection of WSSV and *Vibrio parahaemolyticus* in *Penaeus monodon* (Fabricious) using DNA Dot blot hybridization technique. *Journal of Inland Fisheries Soc. of India*, 38(1) : 15-22.

Brahmane, M.P., Mitra, K., Mishra, S.S. and Biswas, D., 2006. Molecular identification of *Colisa* spp. using RAPD marker. *Journal of Inland Fisheries Soc. of India*, 38 (2): 63-66.

Brahmane, M.P., Mitra, K. and Mishra, S.S., 2008. RAPD fingerprinting of the ornamental fish *Badis badis* (Hamilton 1822) and *Dario Dario* (Kullander and Britz 2002) (Perciformes, Badidae) from West Bengal, India. *Genetics and Molecular Biology*, 31(3) : 789-792.

Mishra, S.S., 2008. Detection of typical *Aeromonas* species associated with skin ulcerative disease in fish using molecular techniques and their genomic characterization using RAPD-PCR. *Journal of Inland Fisheries Soc. of India*, 40 : 36-45.

Mishra, S.S., Brahmane, M.P. and Mishra, S. K. 2009. PCR detection and DNA restriction profile analysis of *Vibrio parahaemolyticus* isolates. *Indian Vet. J.*, 86 : 229- 233.

Panigrahi, A., Azad, I. S., Das, B. K., Dandapat, J., Das, G., Behera, S. and Mishra, S. S. 2009.. Probiotic induced immunomodulation:

	<p>Investigation into the cellular and molecular mechanisms involved. Research J. Biotechnology., 4 (3): 7-13.</p> <p>Mishra, S.S., Dhiman, Mitali., Das, Priyanka, Dutta, C., Mali, P. and Samanta, S. (2010). Microbial hazards associated with fish from different water bodies in relation to pathogens of public health significance. Journal of Inland Fisheries Soc. of India, 42(1) : 33-38.</p> <p>Mishra, S.S., Dhiman, Mitali., Das, Priyanka, Dutta, C., Mali, P. and Samanta, S. (2010). Antimicrobial sensitivity of bacterial flora associated with septicaemic vibriosis in tiger shrimp, <i>Penaeus monodon</i>. Journal of Inland Fisheries Soc. of India, 42(1) : 78-83.</p> <p>Mishra, S.S., Dhiman, Mitali., Brahmne, M.P. and Mishra, S.K. (2011). Taq man based real time PCR for rapid detection and quantification of <i>Vibrio cholerae</i> in fish and meat samples. The Indian Vet .Journal., 88(01): 15-17.</p>
<p>CHAPTERS IN BOOKS</p>	<p>Mishra, S.S.,2000, Yellow head viral disease in shrimp: Experimental induction and pathological studies. In: Advances in Aquaculture, Edt. P.Natarajan, V.Jayaprakash. Dept Aquatic Biology and Fisheries. Univ. of Kerala, Trivandrum, pp. 234-238.</p> <p>Mishra, S.S.,2000. Shrimp viruses: Their pathogenecity, diagnosis and control. In: Advances in Aquaculture, Edt. P.Natarajan, V.Jayaprakash. Dept Aquatic Biology and Fisheries. Univ. of Kerala, Trivandrum, pp. 239-246.</p> <p>Shekhar, M.S. and Mishra, S.S. 2000. Detection of <i>Vibrio parahaemolyticus</i> from shrimp by polymerase chain reaction. In: Advances in Aquaculture, Edt. P.Natarajan, V.Jayaprakash. Dept Aquatic Biology and Fisheries. Univ. of Kerala, Trivandrum, pp. 231-233.</p> <p>Mishra, S.S., 2005. Application of biotechnological tools for health management and sustainable production in aquafarming. In : Scampi in Utter Pradesh, Edt. S.K. Malhotra, Ankit Publication, U.P., India, pp. 50-57.</p> <p>Mishra, S.S. 2006. Immune Mechanism in Shellfish. In : Fish and Shellfish Immunology: An Introduction. Edt. P.Swain, P.K.Sahoo, S.Ayyappan, Narendra Publishing House, New Delhi, pp. 133-148.</p> <p>Mishra, S.S. and Mohanty,S. 2006. Probiotics in disease Resistance. In : Fish and Shellfish Immunology: An Introduction. Edt. P.Swain, P.K.Sahoo, S.Ayyappan, Narendra Publishing House, New Delhi, pp. 225-244.</p> <p>Panigrahi, A., Mishra, S.S., Sundaray,J.K., and Panigrahi, Amiya,</p>

2007. Bioremediation: Conventional and genomic approaches towards better environment. In : Environmental Biotechnology, Edt. C.S.K. Mishra and A.A. Juwarkar, APH Publishing Corporation, New Delhi, pp. 271-292.

Mishra, S.S, and Panigrahi, A., 2009. Enhanced reproductive potential of *Penaeus monodon* broodstock using suitable management practices. In : Recent advances in hormone physiology of fish and shellfish production. Edt. B.N.Singh and A.K.Pandey, Narendra publishing House, Delhi, pp. 365-373.

Mishra, S.S., Shekhar, M.S. and Mishra, S.K., 2009. Transgenic fish and shellfish and their potential application in aquaculture for increased production. . In : Recent advances in hormone physiology of fish and shellfish production. Edt. B.N.Singh and A.K.Pandey, Narendra publishing House, Delhi, pp. 403 - 415.

Mitali Dhiman, Prinyanka Das, Agniswar Sarkar, Mousumi Saha, B.K. Behera and S.S. Mishra (2010). Molecular characterization of salt tolerance genes from aquatic microbes: concepts and application in transgenic research. In : Bioresources for Rural Livelihood, Vol. I. Genetics, Biochemistry and Toxicology, Edited by G.K. Kulkarni, B.D. Pandey and B.D. Joshi, Narendra Publishing House, New Delhi, ISBN : 93-80428-06-2, Ch. 15, pp. 107-111.

Mousumi Saha, M. N. Saha, B. Bandopadhyay, Agniswar Sarkar, Mitali Dhiman and S.S. Mishra (2010). Fish production enhancements and sustainable development using fish cum livestock farming in sewage-fed bheries in East Kolkata wetland, W.B.: An integrated farming approach. Edited by G.K. Kulkarni, B.D. Pandey and B.D. Joshi, Narendra Publishing House, New Delhi, ISBN : 93-80428-06-2, Ch. 20, pp. 251-258.

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