

CURRICULUM VITAE

Rakesh Das, Scientist

M. F. Sc (Fish Pathology & Microbiology)
Ph. D (Pursuing)
ARS (Fish Health)

Official Address:

*ICAR-Central Institute of Freshwater Aquaculture (CIFA),
Fish Health Management Division,
Kausalyaganga, Bhubaneswar-751002,
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Present address for communication:

*Norwegian University of Life Sciences (NMBU),
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EDUCATION

Ph.D. (Veterinary Medicine) *(2019-2022)	Norwegian University of Life Sciences (NMBU) Faculty of Veterinary Medicine, 0454, Oslo, Norway <i>Area of research: Host Pathogen Interactions & Vaccinology.</i>
M. F. Sc (Fish Pathology & Microbiology) (2008-2010)	ICAR- Central Institute of Fisheries Education (CIFE), Deemed University, Versova, Mumbai 400061, India <i>Area of research: Probiotics and Immunostimulant.</i>
B. F. Sc (Fisheries Science) (2004-2008)	Central Agricultural University (CAU), College of Fisheries, Lembucherra 799210, Tripura, India
<i>* pursuing under Netaji Subhas-ICAR International Fellowship programme (on-duty foreign deputation w.e.f.13 September, 2019).</i>	

PROFESSIONAL EXPERIENCES

Employer/Institution	Designation	Period
ICAR-Central Institute of Freshwater Aquaculture (CIFA), Fish Health Management Division, Bhubaneswar, Odisha, India	Scientist	09.04.2014 to till date
ICAR-National Academy of Agricultural Research Management (NAARM), Hyderabad, India	Scientist (on probation)	01.01.2014 to 31.03.2014

PERSONAL COMMENT

My Ph.D. research programme is focus towards understanding how pathogens interact with their hosts at molecular, cellular and whole animal (fish) levels, which is very much essential to the development of strategies to control the spread of disease. Therefore, our research group at NMBU- Faculty of Veterinary Medicine working towards a better understanding of host-pathogen molecular interactions, with a view to increasing our knowledge of disease pathology, immunology and genetics that underpin the development and testing of new vaccines and methods of delivery. Likewise, we have an inter-disciplinary approach to ensure that our research translate to the field.

RESEARCH PROJECTS HANDLED AS CO-PI

<i>Title of the Project</i>	<i>Funding Agency</i>	<i>Durations</i>
Development of bio-control agents against important fish pathogens & their application in Aquaculture.	ICAR-CIFA	01.04.2014-31.03.2018
Characterization of gill associated fish pathogens and their diagnosis and control measures.	ICAR-CIFA	01.04.2014-31.03.2018
All India Network Project on Fish Health.	ICAR	01.04.2015-12.09.19
All India Network Project on Anti-Microbial Resistance (AMR) in fisheries and aquaculture.	ICAR	01.04.2018-12.09.19
Development of suitable health management protocol for challenged freshwater aquaculture systems in India	ICAR-CIFA	01.04.2018-12.09.19
ICAR Consortia Research Platform on Vaccines and Diagnostics- Development of Vaccines against <i>Flavobacterium columnare</i> .	ICAR	2015-2017

AWARDS & RECOGNITIONS

Netaji-Subhas ICAR International Fellowship 2018-19	Received fellowship for 3-years to pursue Ph.D. programme in NMBU-Faculty of Veterinary Medicine, Oslo, Norway by Agricultural Education Division, Indian Council of Agricultural Research (ICAR), New Delhi, India.
Best Oral Presentation Award 2018	During National Conference on “Improving Income of Farmers through Agriculture and Aquaculture Through Development Interventions” during 5-7 January 2018 jointly organized by Association of Aquaculturists (AoA),

	Bhubaneswar in collaboration with Society of Krishi Vigyan, Punjab and ICAR-CIFA, Bhubaneswar.
Young Scientist Award 2019	Awarded for need based research work in fisheries discipline by Kalash Research and Welfare Society, (Reg. No. AL-33004), UP on 25 Feb 2019 during National Symposium on Global warming Vs. Biodiversity and Society.
Young Scientist Award 2016	Awarded for innovative research in aquatic genomics & biotechnology. Zoological Society, Kolkata & Dept. of Zoology, University of Calcutta, CRNN, Salt lake city, Kolkata during 5-6 th February, 2016.

TEACHING EXPERIENCES (AS CO-SUPERVISOR)

Ms. S. Mohanty, M. Sc (Microbiology), OUAT, Odisha worked on “In-vitro characterization and molecular evaluation of bio-control agent against fish bacterial pathogens” during February-July, 2016 at FHMD, ICAR-CIFA, Bhubaneswar.

Mr. Radhakanta Nag, M. Sc (Microbiology), OUAT, Odisha worked on “Isolation & characterization of bacterial isolates associated with gill of Indian major carp, *Labeo rohita*” during February-July, 2017 at FHMD, ICAR-CIFA, Bhubaneswar.

PUBLICATIONS

Research Papers:

Das, Rakesh., Raman, Ram Prakash., Saha, Himadri., Singh, Ranjan. **2015**. Effect of *Ocimum sanctum* Linn. (Tulsi) extract on the immunity and survival of *Labeo rohita* (Hamilton) infected with *Aeromonas hydrophila*. Aquaculture Research. <https://doi.org/10.1111/are.12264>

Das, Rakesh*, Raman, R. P., Makesh, M., Tripathi, G., Purushothaman, C.S., Gupta, S. **2016**. Multi species probiotic bacteria improves growth and physiological health status of *Labeo rohita* fingerlings. Int. J. Applied and Pure Science & Agriculture (IJAPSA) Volume 02, Issue 09, pp 92-103.

Baruah, A., **Das, Rakesh***, Kumar, S., Roy, P., Sahu, A., Panda, S., Mishra, S. S. and Das, B.K. **2016**. A novel and effective *Clostridium bifermentans* CPSS2 against selected fish pathogenic bacteria. Int. J. Adv. Res. Vol. 4(9), Pages 2140-2150. DOI:10.21474/IJAR01/1700.

Mishra, S. S., **Das, Rakesh.**, Dhiman, M., Choudhary, P., Debbarma, J., Sahoo, S. N., Barua, A., Giri, B. S., Ramesh, R., Ananda, K., Mishra, C. K. and Swain, P. **2017**. Present status of fish disease management in freshwater aquaculture in India: State-of the-Art-Review. HSOA Journal of Aquaculture & Fisheries, J. Aquac Fisheries, 1: 003.

Mishra, S. S., **Das, Rakesh.**, Das, B. K., Choudhary, P., Rathod, R., Giri, B. S., Debbarma, J., Sahoo, S. N., Barua, A., Sahu, A., Patil, P. K. and Swain, P. **2017**. Status of aqua-medicines, drugs

and chemicals use in India: A Survey Report. HSOA Journal of Aquaculture & Fisheries, J Aquac Fisheries, 1: 004.

Mishra, S. S., **Das, Rakesh.**, Choudhary, P., Debbarma, J., Sahoo, S. N., Giri, B. S., Rathore, R., Kumar, A., Mishra, C. K. and Swain, P. **2017**. Present status of fisheries and impact of emerging diseases of fish and shellfish in Indian aquaculture. J Aquat Res Mar Sci 2017: 5-26.

Mishra, S. S., **Das, Rakesh.**, Choudhary, P., Debbarma, J., Sahoo, S. N., Rathore, R., Giri, B. S. **2017**. Prevalence of Fish and Shrimp Diseases and Use of Various Drugs and Chemicals in Indian Aquaculture for Disease Management. J Fish Aqua Dev: JFAD-129. DOI:10.29011/JFAD129/100029

Swain, Priyabrat., **Das, Rakesh.**, Das, Aakankshya., Padhi, Soumesh Kumar., Das, Krushna Chandra., Mishra, Sudhansu S. **2018**. Effects of dietary zinc oxide and selenium nanoparticles on growth performance, immune responses and enzyme activity in rohu, *Labeo rohita* (Hamilton). Aquaculture Nutrition. DOI: 10.1111/anu.12874. (Accepted: 10 November 2018).

Pattanayak, R., **Das, Rakesh.**, Das, A., Padhi, S. K., Sahu, S. S., Pattnaik, S., Mishra, C. S. K., Mishra, S. S., Mohanty, C. S., Sinam, G., Barman, H. K., Sundaray, J. K. and Swain, P. **2018**. Toxicological Effects of Silver Nanoparticles (Ag-NPs) on Different Physiological Parameters of Tadpoles, *Polypedates maculatus*. International Journal of Bio-resource and Stress Management. 9(5): 647-654.

Pattanayak, R., **Das, Rakesh.**, Das, A., Padhi, S. K., Pattnaik, S., Sahu, S. S. , Mishra, C. S. K., Mishra, S. S., Sahoo, S. N., Debbarma, J., Mohanty, C. S., Sinam, G., Sundaray, J. K. , Swain, P. **2018**. Biosafety Evaluation of Zinc Oxide Nanoparticles (ZnO NPs) on *Polypedates maculatus* (Gray, 1830). International Journal of Zoological Investigations. 4 (1): 61-72.

Mondal, Aziz Hasan., Behera, Truptimayee., Swain, Priyabrat., **Das Rakesh.**, Sahoo, Satya Narayan., Mishra, Sudhansu Sekhar., Das, Jayakrushna., Ghosh, Koushik. **2020**. Nano zinc vis-à-vis inorganic Zinc as feed additives: Effects on growth, activity of hepatic enzymes and non-specific immunity in rohu, *Labeo rohita* (Hamilton) fingerlings. Aquaculture Nutrition. <https://doi.org/10.1111/anu.13077>.

Book chapters:

Mishra, S.S., **Das, Rakesh.**, Rathod, R., Giri, B.S., Swain, P. **2018**. Antimicrobials and Chemicals used in Fish Disease Management and Possible Impact in Reaching the Unreached: Newer approaches in Animal Sciences for Socio-Economic Upliftment. Editors: P. Nagaraja Rao, Ashok Kumar Saxena, Vijay Laxmi Saxena and G.K. Kulkarni. Today and Tomorrow's Printers and Publishers, New Delhi-110002, India. ISBN: 81-7019-605-0. PP: 1-20.

Mishra, S.S., **Das, Rakesh.** and Swain., P. **2018**. Status of Fish Diseases in aquaculture and assessment of economic loss due to disease in Contemporary trends in Fisheries and Aquaculture. Editors: P. Nagaraja, B.N. Pandey, P.N. Pandey and B.D. Joshi. Today and Tomorrow's Printers and Publishers, New Delhi, 110002, India. ISBN: 81-7019-603-4. PP: 183-199.

Technical Bulletins:

Mishra S. S., Swain P., **Das, R.**, Choudhary, P., Sundaray, J. K. 2017. Common diseases of Freshwater Fish and their Management (*In English*). ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha, Pp: 1-16. ISBN: 0972-0146.

Mishra S. S., Swain, P. **Das, R.**, Verma, D.K., Sundaray, J. K. 2017. Common diseases of Freshwater Fish and their Management (*In Hindi*). ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha, Pp: 1-16. ISBN: 0972-0146.

Mishra S. S., Swain, P. **Das, R.**, Rathod, R., Giri, B. S., Sundaray, J. K. 2017. Common diseases of Freshwater Fish and their Management (*In Telegu*). ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha, Pp: 1-16. ISBN: 0972-0146.

Mishra S. S., Swain, P., Rath, S. C., **Das, R.**, Choudhary, P., Sundaray, J. K. 2017. Common diseases of Freshwater Fish and their Management (*In Odia*). ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha, Pp: 1-16. ISBN: 0972-0146.

ABSTRACTS PRESENTED IN DIFFERENT SEMINAR/SYMPOSIUM/CONFERENCES

(Category: Oral presentations)

Rakesh Das*, S. N. Sahoo, J. Debbarma, P. Choudhary, P. Swain and S. S. Mishra. **2019**. Study on dietary administration of antimicrobial (Oxytetracycline) on growth and physiological health status of rohu, *Labeo rohita*. In in abstract book of 31st All India Congress of Zoology & National Seminar on Climate-Smart Aquaculture and Fisheries January 15-16, 2019. PP: 130.

S. S. Mishra, **Rakesh Das***, S. N. Sahoo and P. Swain. **2019**. Fish Health Management issues in response to climatic change in North eastern states in India: Strategies for their management and control. In in abstract book of 31st All India Congress of Zoology & National Seminar on Climate-Smart Aquaculture and Fisheries January 15-16, 2019. PP: 124.

Das, Rakesh., Debbarma J., Choudhary, P., Sahoo S. N., Mishra S. S. & Swain P. **2018**. Study of Antibiogram Profile of Bacterial Isolates from Diseased Fish In souvenir: National Workshop on “Antimicrobial resistance and alternatives to aquaculture (AMR 2018). ISBN: 978-81-935417-2-2. Pp: 118-121.

Ekbal,S., Roy, P., **Das, Rakesh***, Panda, S.P., Mishra, S.S., Swain, S.K. & Das, B.K. **2016**. Isolation and molecular characterization of gill associated bacteria from ornamental diseased fish in *National Seminar on “Fisheries & Aquaculture: Livelihood security, Sustainability and Conservation”*.

Baruah, A., **Das, Rakesh***, Kumar, S., Roy, P.,Panda, S.P., Mishra, S.S., & Das, B.K. **2016**. A Novel and Effective *Clostridium Bifermentans* CPSS2 Against Selected Fish Pathogenic Bacteria in *National Seminar on “Fisheries & Aquaculture: Livelihood security, Sustainability and Conservation”*.

Das, Rakesh*, Baruah, A., Ekbal, S., Roy, Pragyan., Panda, S. P., Mishra, S.S., Swain, S. K. & Das, B.K. **2016**. Genotypic and phenotypic characterization of selected bacterial strain towards need based development in aquatic animal health research in *National Level Young Scientists' Meet 2016 Prof. Hiralal Chaudhuri Commemorative Conference, 5-6 February, 2016, CRNN-Kolkata, India*. (Abstract book Pp 61-62.)

Mishra, S.S*., Das, B.K., Swain, P., Sahoo, P.K. and **Das, Rakesh**. **2016**. Molecular Diagnostics and Genomic Approaches for Health Management in Aquaculture in *2nd International Symposium on Genomics in Aquaculture, 28-30 January, 2016, ICAR- Central Institute of Freshwater Aquaculture, Odisha, India*.

(Category: Poster presentations)

Das, Rakesh., Nag, R., Sabar, S., Mishra, S.S., Choudhary, P. and Swain, P. **2017**. Isolation and characterization of a typical *Aeromonas veronii* from fish *Labeo rohita* In: Book of Abstracts, National Symposium on Fostering Innovation in Fisheries and Aquaculture (11th IFAF, November 21-24, 2017). ISBN: 978-81-933623-1-0. Pp.: 320.

Das, Rakesh*, Mishra, S.S. Swain, P., Das, B. K., Sahu, A and Panda, S. **2016**. Prevalence of Various Aqua-drugs and Chemicals used for Aquaculture: A Survey Report Production in *National Seminar on Aquaculture Diversification: the Way forward for Blue Revolution, ICAR- Central Institute of Freshwater Aquaculture, Odisha, India*. (Book of Abstract pp: 96).

Das, Rakesh*, Choudhary, P., Mishra, S.S., Swain, P., Sahu, A and Das, B. K. **2016**. Mixed infection of Gills of Rohu (*Labeo rohita*) causing huge morbidity and mortality in pond culture- A case Study in *National Seminar on Aquaculture Diversification: the Way forward for Blue Revolution, ICAR- Central Institute of Freshwater Aquaculture, Odisha, India*. (Book of Abstract pp: 97).

Swain, P., Mishra, S.S., **Das, Rakesh.**, Padhi, S. K., Das, K. C. & Jayasankar. P. **2016**. Application of Nanotechnology in Aquaculture For Improving Fish Production in *National Seminar on Aquaculture Diversification: the Way forward for Blue Revolution, ICAR- Central Institute of Freshwater Aquaculture, Odisha, India*. (Book of Abstract pp: 90).

TECHNOLOGY COMMERCIALIZED FOR THE STAKEHOLDERS

(As team member/co-inventor):

- ❖ Spot Agglutination Kit.
- ❖ DOT ELISA KIT.
- ❖ Nanoplus^{@CIFA}

MEMBER OF PROFESSIONAL BODIES

- ✓ Association of Aquaculturists (AOA), India.
- ✓ North East Society for Fisheries and Aquaculture (India).
- ✓ Agricultural Research Service Scientists Forum (ARSSF), India.

PERSONAL DETAILS

Name: Rakesh Das

Marital Status: Married

Nationality: Indian

Gender: Male

Date of Birth: 17-05-1986

Languages known: English, Hindi, Bengali and Odia.