

CURRICULUM VITAE



Dr. Amit Kumar Sinha

Asst. Professor (Fish toxicology, Water quality)
Aquaculture/Fisheries Center
University of Arkansas at Pine Bluff
Arkansas-71601, USA
Phone: +1 870 209 1635/ Fax: +1 870 575 4639
Email: sinhaa@uapb.edu, amitsinha.ua@gmail.com

Personal information

Date of Birth: Oct. 25, 1982
Nationality: Indian
Gender: Male
Marital Status: Married

Education

Degree	University	Session	Percentage	Discipline
<i>Post-Doctoral Researcher</i>	University of Antwerpen, Belgium	2013 (Jun)- 2016 (Jun)	-	Fish toxicology/Water Quality/Genomics
<i>PhD</i>	University of Antwerpen, Belgium	2009-2013	-	Water quality/Toxicology
<i>M.Sc</i>	Ghent University, Belgium	2006-2008	80.2#	Aquaculture
<i>B.Sc</i>	Central Agricultural University, India	2001-2005	86.6*	Aquaculture/Fisheries

#Greater Distinction, Batch topper

* Gold Medalist

Professional experience

- **2005-06:** Research assistant in Aquaculture and Fish genetic lab, CIFE (Mumbai, India).
- **2006-08:** Research assistant (MSc) in Aquaculture lab, Gent University (Belgium).
- **2008-09:** Visiting Scientist, University of Antwerpen (Belgium)
- **2009-13:** Research and teaching associate at University of Antwerpen (Belgium)
- **2011-12:** Visiting Scientist at McMaster University (Canada)
- **2013- June. 2016:** PostDoc Research associate/mentor at University of Antwerpen.
- **2009-June. 2016:** Mentor Graduate and Under Graduate Research Thesis and visiting students/lecturer.
- **July 2016 -onwards:** Assistant Professor – Dept. of Aquaculture and Fisheries, University of Arkansas, Pine Bluff, Arkansas, USA.

Research Experience

I have more than 12 years of experience in aquaculture, water quality management allied to production system, toxicology and physiology. As a part of my Master, PhD, Postdoc and ongoing research I published 33 research and 4 review papers in various aspects of fisheries, aquaculture and aquatic science. I also served as a potential referee for more than 25 peer reviewed journals. I also successfully collaborated with different research group at national and international levels.

During these years, I gained research experience exclusively on fish production and rearing system, water quality monitoring in pond, re-circulatory and open water system, and elucidating fish responses to pollutants/stresses *viz.* high ammonia level, pesticide exposure, metal exposure, feed limitation, CO₂, hypoxia and salinity stress. I decipher fish responses at various organizational levels spanning from whole fish to the genome. I got expertise on organismal (growth, feeding efficiency, nutrient requirements), physiological (swimming performance, oxygen intake, nutrient metabolism etc), cellular (ultrastructural gill analysis by electron microscopy), biochemical (oxidative stress and antioxidant analysis, fatty acids, amino acid metabolism and metal profiling by using different tools such as enzymatic, HPLC, UPLC, ICPMS) and molecular analysis (development of DNA biomarkers, gene cloning and expression profiling etc.). I was also involved in the projects related to monitoring of metals pollution in natural and fish culture based system (in Canada, Hungary, Brazil, Vietnam, India), fish reproductive biology and induced breeding.

Recently, I got involved in the high-through put genomics by using illumina Hi-Seq/Mi-Seq RNA seq platforms, and its downstream data analysis. De-novo transcriptome assembly of brain and gills were developed and genome-wide transcriptome analysis is under way. Moreover, characterization of gene expression patterns in aquatic animals by using Q-PCR and development of (molecular) biomarkers is my core expertise.

Research interest

- Aquaculture, Water quality management in culture based system and natural ecosystem, recirculating and raceway fish rearing systems, Fish Physiology, Toxicology, Stress Biology, Climate Change, Fish and invertebrates nutrition, Animal nutrition, Fish bioenergetics, Nutrient metabolism.
- Endocrinology, Osmoregulation, Gene quantification, Next GenSequencing, Ion-regulation and Molecular Biomarker, Biochemical and Molecular techniques.

Teaching Experience

Year	Courses taught	University
2008-2016	Physiology of Aquatic animals	-University of Antwerp, Belgium -Gent University, Belgium
2009-2010	Introduction to Toxicity testing of chemicals	-University of Antwerp, Belgium. - Vrije University, Brussels, Belgium
2013- 2016	Anthropogenic impacts: Exploitation and Aquaculture	-University of Antwerp, Belgium. - Vrije University, Brussels, Belgium
2016-Continue	Limnology	-University of Arkansas at Pine Bluff, USA
2017-Continue	Aquaculture	-University of Arkansas at Pine Bluff, USA
2017-Continue	Fish Physiology	- University of Arkansas at Pine Bluff, USA
2018-Continue	Aquatic chemistry and Analysis	- University of Arkansas at Pine Bluff, USA

Collaborations/Collaborative partners

- **Visiting Scientist (2011-12):** Six months research experience in fish physiology and molecular biology at Department of Biology (Under supervision of Prof. Dr. Chris Wood), **McMaster University, Canada.**
- **Organized a workshop** (Sept. 2009) on the various techniques for the ‘Development of molecular biomarkers system as a first-tier method of identifying stressors in the aquaculture system’ at Can Tho University, Vietnam.
- Three month research work at Laboratory of Comparative Endocrinology (University of Leuven) and Molecular Plant Physiology and Biotechnology group (University of Antwerpen), **Belgium.**
- Collaborative microscopic (light and more extensive scanning electron microscopic) work with **San Diego State University, USA.**
- Gene expression profiling of Catfish with Institute for Fisheries and Aquaculture, **Szarvas, Hungary.**
- Participated with **University of Hohenheim, Germany** for the project aimed at the potential use of purified anti-nutrients as fish meal.
- Gene expression pattern of Indian major carp, *Labeo rohita* in collaboration with National Bureau of Fish Genetic Resources, **India.**
- Biomonitoring of metal pollution in **South East Brazil.**
- Ammonia management in Aquaculture system, College of Fisheries, Ludhiana, **India.**

Director/co-chair of Thesis students

PhD Thesis (co-chair)

1. Ocean acidification: beyond the suspected effects in fish.
2. Mechanisms of ammonia transport in marine fish with a different nitrogen metabolism.

Master Thesis (Director/ Chair/ Co-chair)

3. Mixed metal and ammonia toxicity as a stress matrix in catfish and largemouth bass aquaculture systems: developing a multi-level biomarker for water quality monitoring (*on going*).
4. Temporal assessment of the ammonia metabolism evolution in carp during fasting: a promising approach to optimize aquaculture practices involving fasting episode prior to fish transportation
5. Interactive effect of copper exposure and high environmental ammonia chronically on ecophysiological performance of common carp (*Cyprinus carpio*).
6. Physiological and ion-regulatory responses in common carp (*Cyprinus carpio*) exposed to short term copper and ammonia exposure.
7. Swimming capacity, energy metabolism and ion-regulation as the end point for the evaluation of fish exposed to pollution under field conditions.
8. Interactive effects of high environmental ammonia, salinity stress and starvation on metabolic, physiological and ion-regulatory status of European seabass (*Dicentrarchus labrax*).
9. Adaptive responses to high environmental ammonia in European seabass (*Dicentrarchus labrax*) acclimated to different salinities.
10. The combined effect of hypoxia and nutritional status on metabolic and iono-regulatory responses of common carp (*Cyprinus carpio*).
11. The combined effects of ammonia exposure, nutrient status and exercise on the physiological, biochemical and gene level in carp (*Cyprinus carpio*).

Undergraduate Thesis (Chair/Director)

12. Physiological, metabolic and ion-regulatory adaptive strategies in goldfish and common carp in response to water borne ammonia.
13. Influence of ammonia exposure, nutritional status and exercise on the expression pattern of potential

- biomarker genes in common carp (*Cyprinus carpio*).
14. Ecophysiological performance of European seabass (*Dicentrarchus labrax*) under the impact of ocean acidification and salinity challenge.
15. The modulating effect of fasting episodes on the ammonia metabolism, Rh glycoproteins, ion-regulation and energy storage in common carp (*Cyprinus carpio*).

Supervisor of international collaborators (Graduate students/scientists)

16. Expression pattern of potential biomarker genes in common carp, *Cyprinus carpio* in response to immune-suppression/infection (India).
17. Expression profiling of growth related genes in catfish fed with animal protein (Hungary).
18. Modulation of Metal toxicity (copper and cadmium) in presence of dissolved organic carbon (Brazil).
19. The positive impact of feeding plant based diet from the early stage in common carp on its future utilization (Hungary).
20. Pre-acclimation to low ammonia improves ammonia handling in common carp when exposed subsequently to high environmental ammonia (India).

Ongoing/submitted Projects

Year/ Position	Project	Funding body	University
2017-cont. (Principal Investigator)	Application of nutrient manipulation and hydrogen peroxide to control cyanobacteria growth	Arkansas Water Resources Center	University of Arkansas at Pine Bluff, USA
2017 (Principal Investigator)	Salinity reduction and ocean acidification dynamics in coastal environment (<i>submitted</i>)	NOAA Sea Grant	University of Arkansas at Pine Bluff, USA
2014-cont. (Principal Investigator)	Global transcriptome profiling (by Next Gen Sequencing) of marine fish in response to climate change	Bijzonder Onderzoeksfonds (BOF)	University of Antwerp, Belgium
2015-19 (Co-Investigator)	Mechanisms of ammonia transport in marine fish with a different nitrogen metabolism.	BOF	University of Antwerp, Belgium
2014-18 (Co-Investigator)	Effect of ocean acidification on fitness of fish at different salinity gradient	Government of India	University of Antwerp, Belgium

Completed Research Projects

Year/ Position	Project	Funding body	University
2013-16 (Principal Investigator)	Ammonia transport in marine piscine groups: physiological and evolutionary role of Rhesus (Rh) glycoproteins.	Fonds Wetenschappelijk Onderzoek – (FWO)	-University of Antwerp, Belgium. -University of Alberta, Canada
2014-15 (Principal Investigator)	Assessment of metal (copper) toxicity in	FWO	-University of Antwerp,

Investigator)	ammonia polluted water		Belgium.
2012-13 (Principal Investigator)	Gill remodeling in freshwater teleosts in response to ammonia toxicity	FWO	-University of Antwerp, Belgium. -San Diego State University, USA
2012-13 (Co-Investigator)	Effects of hypoxia on comparative fish physiology	BOF	-University of Antwerp, Belgium.
2009-13 (Principal Investigator)	The changing world as a stressful environment: Combined effects of hypoxia, ammonia and feeding in fish	FWO	-University of Antwerp, Belgium. -McMaster University, Canada
2010-12 (Co-Investigator)	Putting feeding into the picture	BOF	-University of Antwerp, Belgium.
2008-09 (Co-Investigator)	Analytical and Biological Methods In Support Of Sustainable Aquaculture Practices	Belgian Science Policy Office (Belspo)	- University of Antwerp, Belgium. - Can Tho University, Vietnam

Publication List

Refer: <https://scholar.google.be/citations?user=x0y5uC8AAAAJ&hl=en>

Journal Editorial Board Member

- **Frontiers in Aquatic Physiology**
- **Annals of Aquaculture and Research**
- **Journal of Aquaculture and Fisheries**, Herald Scholarly open access

Referee for Grant Proposal

- **The French National Research Agency (ANR)**, Ministry of Research, France, Europe.
- **National Oceanic and Atmospheric Administration (NOAA) Sea Grant**, U.S. Department of Commerce.

Reviewer of Peer Review Journals

Aquaculture, Aquatic toxicology, Aquaculture Nutrition, Aquaculture research, Animal Feed Science and Technology, British Journal of Nutrition, Canadian Journal of Fisheries and Aquatic Sciences, Chemosphere, Comparative Biochemistry and Physiology (Part A, B, C, D), Fish Physiology and Biochemistry, Fish and Fisheries, Journal of Experimental Pathology, Environmental Science and Pollution Research, Journal of Comparative Physiology, PLOS One, Journal of Animal Physiology and Animal Nutrition, Anatomia Histologia Embryologia,

Ecotoxicology and Environmental Safety, Canadian Journal of Fisheries and Aquatic Sciences, Environmental Toxicology and Chemistry, Fish Biology and Fisheries, Journal of Applied Ichthyology, Journal of Thermal Biology, Journal of World Aquaculture Society, Journal of Fish Biology, Science of the Total Environment.

Member of Scientific Organizations

- World Aquaculture Society (WAS)
- Sigma Xi (Secretary- Central Arkansas Chapter)
- American Fisheries Society (AFS)
- The Society of Experimental Biology (SEB)
- Professional Fisheries Graduate Forum (PFGF)

PROFESSIONAL ACTIVITIES

- Served as the Panelist for National Oceanic and Atmospheric Administration (NOAA) Sea Grant, U.S. Department of Commerce.
- Served as the Panelist for The French National Research Agency (ANR), Ministry of Research, France, Europe.
- Serve the technical member for University wide Research committee Forum, University of Arkansas, Pine Bluff (Year 2017 - present).
- Serve as an Advisory Council and Technical Committee Members on Southern Regional Aquaculture Center (SRAC) in evaluation of research proposals and identification of most meritorious proposals for funding (Year 2017- present)
- Served as the judge for best student abstract award in World Aquaculture Society conference.
- Reviewer Technical Committee for International Conference on Sustainable Global Aquaculture (ICSGA), Bangkok, Thailand, Jan. 24-26, 2018.