

CURRICULUM VITAE

DR. ABHA MISHRA

Current Position : Assistant professor (Senior Scale) in The Department of Applied Animal Sciences, Babasaheb Bhimrao Ambedkar University (Central University), Lucknow-226025, India.

Area of Specialization: Fish and Fisheries

Area of Research : Reproductive physiology, Endocrinology, Toxicology.

Date of Birth : 30 June 1977

Nationality : Indian

Working Language : English

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Educational Qualification:

1. **Secondary:** Hindi, English, Mathmatics-2, Science-2, Biology, Social Science. 1991, MPGI College, Kanpur, U. P. Board, India. Obtained First Division (61.3 %) with distinction in Biology.
2. **Higher Secondary:** General Hindi, English, Physics, Chemistry, Biology. 1993. GGI College, Fatehpur, U. P. Board, India. Obtained First Division (62.8 %) with distinction in Biology.
3. **Bachelor of Science:** Zoology (Honors), Botany and Chemistry. 1994-1997, Purvanchal University, Jaunpur, India. Obtained First Division (72.2 %).
4. **Master of Science:** Zoology. 1998-2000. Department of Zoology, Banaras Hindu University, Varanasi, India. Obtained First Division (68.78 %) and *second position in the batch*.
5. **Doctor of Philosophy:** Zoology. September 2000-2005, Banaras Hindu University, Varanasi, India.

Title of Ph.D. Thesis:

Oocyte maturation in the catfish *Heteropneustes fossilis* (Bloch): Role of catecholestrogens and some underlying cellular and biochemical mechanisms.

Outstanding Contribution:

My research article's photograph has been published on cover page of the journal, "General Comparative Endocrinology (2006), 147".

Awards / Honours :

1. **Gold Medal:** Dr. Hanuman Singh Memorial Gold Medal in the year 2000 for securing highest marks in Fish Biology specialization in M. Sc. Zoology, Banaras Hindu University.
2. **RET Award:** Secured 1st rank at National level Research Entrance Test (RET) for pursuing Ph. D. in Banaras Hindu University in the year 2000 and awarded fellowship.
3. **NET:** Qualified eligibility test for lectureship at National level jointly conducted by University Grants Commission (UGC) and Council for Scientific and Industrial Research (CSIR) of December 2001.

4. **SLET**: Qualified eligibility test for Lectureship at State level conducted by Rajasthan Public Service Commission (RPSC), Ajmer, Rajasthan, 2001.
5. **ASRB**: Qualified eligibility test for Lectureship / Assistant Professorship at National level conducted by Agricultural Scientists Recruitment Board (Indian Council of Agricultural Research), New Delhi, 2001.
6. **GATE**: Qualified Graduate Aptitude Test in Engineering at National level with 81.7 percentile in the year 2002.
7. **Best Poster Award**: Poster entitled “Induction of oocyte final maturation in the catfish *Heteropneustes fossilis* by catecholestrogens and catecholamines”, by A. Mishra and K. P. Joy, was selected for best poster award in the XXI- Symposium of the Society for Reproductive Biology & Comparative Endocrinology, Varanasi, 2003.
8. **F. Z. S. I.**: Zoological Society of India selected Fellow of Society in the year 2008.
9. **S. P. Basu Memorial Award**: Zoological Society of Kolkata for the year 2010
10. **SERB**-Young Scientist Award, New Delhi of year 2012.
11. **Bioved Young Scientist Award 2013**: In the field of Aquaculture and Fish Endocrinology by Bioved Research Institute of Agriculture and Technology, Allahabad.
12. **Dr. Hiralal Chaudhuri Best Scientist Award** for the year 2012-2013 by CIFE, Mumbai.
13. **Young Scientist Award 2013**: In the field of Fish Endocrinology by Society of Biological Sciences and Rural Development, Allahabad.
14. **Young Scientist Award**: for outstanding contribution in the field of fish and fisheries by Society for Science and Nature, 2016.

Research Fellowships:

(A) Junior Research Fellowship:

1. **RET**: For securing 1st rank in Research Entrance Test (RET), conducted and sponsored by Banaras Hindu University in the year 2000 awarded this fellowship from September 2000-Januray 2003.

2. **CAS:** On the basis of merit awarded Junior Research Fellow (JRF) of Centre of Advanced Study (CAS) in Zoology, Banaras Hindu University from February 2003-January 2005.

(B) Senior Research Fellowships:

1. **CAS:** On the basis of progress made in two years of JRF, awarded Senior Research Fellow (SRF) of CAS in Zoology, Banaras Hindu University, from February 2005-March 2006.

2. **CSIR:** Awarded Ext-SRF of Council of Scientific and Industrial Research (CSIR) on the basis of research work proposal in Zoology, Banaras Hindu University, in April 2006-November 2006

Externally funded Research Projects:

1. DBT in collaboration with NBFGR as co-investigator (BT/PR14628/AAQ/03/537/2010): “Identification and evaluation of reproductive traits and genetic structure of *Ompok bimaculatus* in India” of total cost in Rs. 55,31,000/- for three years (27 Sept 2011 to 26 Dec 2014). **COMPLETED**

2. DST – SARC - FAST TRACK – SERB-Young Scientist as principal investigator (SR/FT/LS,106/2010): “Teratogenic effects of Hilban[®], an organic insecticide, on fresh water fish *Channa punctatus* (Bloch, 1793)” of total cost in Rs. 24,00,000/- for three years (28 May 2012 to 27 May 2015). **COMPLETED**

3. CST,UP as principal investigator (CST/D/1214): “Toxicological effect of chlorpyrifos, an insecticide, on the behavioral, physiological and biochemical aspects of fresh water fish *Channa punctatus* during its life span” of total cost in Rs. 8,40,000/- for three years (awarded on 12.9.12, started on 14.2.13 to 13.2.16). **COMPLETED**

Workshop/Symposium/Seminar etc. Organized

1. Member of organizing committee of 18th All India Congress of Zoology and National Seminar on Current Issues on Applied Zoology and Environmental Sciences with Special Reference to Eco-restoration and Management of Bioresources (SCIAZE), Lucknow,

INDIA, 7-9 December, 2007 jointly with University of Lucknow and B. B. A. University, Lucknow in collaboration with Zoological Society of India, Bodh Gaya.

2. Member of organizing committee of “World Wetlands Day” program in Dept of Applied Animal Sciences, BBAU, on 2nd February 2013 in collaboration with UP State Biodiversity Board.
3. Convener of Chess event in University Annual Sports – 2014, March 12-13, BBAU, Lucknow
4. Member of organizing committee of “International Symposium on Biodiversity: Status, Utilization and Impact of Challenging Climatic Conditions” organized by BBAU in collaboration with the Indian Academy of Environmental Sciences, Haridwar, Uttarakhand from 30-31st October 2014.
5. Rapporteur in “International Symposium on Biodiversity: Status, Utilization and Impact of Challenging Climatic Conditions” organized by BBAU in collaboration with the Indian Academy of Environmental Sciences, Haridwar, Uttarakhand from 30-31st October 2014.
6. Rapporteur in “International Symposium on Innovations in Horticulture for Nutritional Security, Conserving Biodiversity and Poverty Alleviation” organized by Department of Applied Plant Sciences, BBAU in collaboration with the Indian Society of Horticultural Research and Development (ISHRD) from 16-18th October 2014.

Publications (Research Articles):

International Journals:

1. **Mishra A & Joy KP.** HPLC-Electrochemical detection of ovarian estradiol-17 β and catecholestrogens in the catfish *Heteropneustes fossilis*: Seasonal and periovulatory changes. *Gen. Comp. Endocrinol.* 2006, 145, 81-95.
2. **Mishra A & Joy KP.** Relative effects of estradiol-17 β (E₂), catecholestrogens and clomiphene citrate on in vitro oocyte maturation in the catfish *Heteropneustes fossilis* (Bloch) and E₂ inhibition of 2-hydroxyestradiol-induced maturation. *Gen. Comp. Endocrinol.* 2006, 147, 141-149.

3. **Mishra A & Joy KP.** Effects of gonadotrophin *in vivo* and 2-hydroxyoestradiol-17 β *in vitro* on follicular steroid hormone profile associated with oocyte maturation in the catfish *Heteropneustes fossilis*. *J. Endocrinol.* **2006, 189, 341-353.**
4. **Mishra A & Joy KP.** Involvement of mitogen-activated protein kinase in 2-hydroxyestradiol-17 β -induced oocyte maturation in the catfish *Heteropneustes fossilis* and a note on possible interaction with protein phosphatases. *Gen. Comp. Endocrinol.* **2006, 147, 329-335.**
5. **Mishra A & Joy KP.** 2-hydroxyestradiol-17 β -induced oocyte maturation in the catfish *Heteropneustes fossilis* involves protein kinase C and its interaction with protein phosphatases. *Comp. Biochem. Physiol. A* **2006, 144, 416-422 .**
6. **Mishra A & Joy KP.** 2-hydroxyestradiol-17 β -induced oocyte maturation: Involvement of cAMP - protein kinase A and okadaic acid-sensitive protein phosphatases, and their interplay in oocyte maturation in the catfish *Heteropneustes fossilis*. *J. Exp. Biol.* **2006, 209, 2567-2575.**
7. Kaushal B.T. and **Mishra A.** A comparative toxicity analysis of cadmium compounds on morphological and behavioral aspects in air breathing freshwater fish *Channa punctatus*. *International Journal of Science and Nature.* **2 (2) 2011; 266-269. (ISSN: 229-6441).**
8. **A. Mishra,** B.T. Kaushal, K. Singh. A toxicity study of heavy metal toxicant cadmium sulphate on behavioral and morphological changes of the fresh water fish *Channa punctatus* (Bloch). *International Journal of Pharmaceutical Invention.* **2012, 2(8), 8-19. (ISSN: 2277-1220).**
9. B.T. Kaushal and **A. Mishra.** Investigation of acute toxicity of cadmium on snakehead fish *Channa punctatus*- A comparative toxicity analysis on median lethal concentration. *International Journal of Advanced Biological research,* **3(2) 2013, 289-294. (ISSN: 2250-3579)**
10. Krishna Singh and **Abha Mishra.** A comparative study on seasonal distribution of the helminth parasites communities of some catfishes. *International Journal of Pharma and Biosciences* **2013, 4(3). (ISSN: 0975-6299)(IF 0.47)**
11. Yogita Devi & **Abha Mishra.** Study of behavioural and morphological anomalies of fry fish of fresh water teleost, *Channa punctatus* under chlorpyrifos intoxication. *International Journal of Pharma and Biosciences* **2013, 4(1): (B) 865 - 874. (ISSN: 0975-6299)(IF 0.47)**

12. **Abha Mishra** and Yogita Devi. Histopathological alterations in the brain (optic tectum) of the fresh water teleost *Channa punctatus* in response to acute and subchronic exposure to the pesticide Chlorpyrifos. *Acta Histochemica* 2014, 116:176-181. (IF 1.608)
13. **A. Mishra**, N. Mishra, A. Rawat, S. Verma. Effect of an organophosphate insecticide, chlorpyrifos on mortality and haematology of freshwater butter catfish *Ompok bimaculatus* (Bloch, 1794). *Pensee Journal* 2014, 76(5) 452-461. (IF 0.09).
14. Ravindra Kumar^{a*}, Brijesh Kumar Pandey^a, Uttam Kumar Sarkar^a, Naresh Sahebrao Nagpure^a, Vishwamitra Singh Baisvar^a, Praveen Agnihotri^a, Abhishek Awasthi^a, **Abha Mishra**^b & Narendra Kumar^a. Population genetic structure and geographic differentiation in butter catfish, *Ompok bimaculatus*, from Indian waters inferred by cytochrome b mitochondrial gene. **Mitochondrial DNA Part A: DNA Mapping, Sequencing, and Analysis** 2016, 9:1-9. (IF 1.209).
15. **Abha Mishra**, Anurag rawat, Sneha verma, Uttam Kumar Sarkar, Ravindra Kumar (2016). Spawning dynamics of female freshwater buttercatfish, *Ompok bimaculatus* (Bloch, 1794) in different major rivers of India. *International J. of Fisheries and Aquatic Studies*; 4(3); 449-457.
16. **Abha Mishra** and Sneha Verma (2016). Acute toxicity bioassay of organophosphorus pesticide, chlorpyrifos on freshwater catfish, *Heteropneustes fossilis* (Bloch, 1794). **International Journal of Fisheries and Aquatic Studies**. 4(6): 388-393. ISSN: 2394-0506.
17. Mishra A., Sarkar U.K., Kumar R., Rawat A., Verma S., 2017. Gonadal maturity assessment of butter catfish (*Ompok bimaculatus*) from Indian major rivers and tributaries during spawning season. **Iranian Journal Of Fisheries Sciences (Accepted)**. (IF 0.527).

B. National Journals:

1. **Mishra A & Joy KP**. Ovarian monosaccharides (glucose and fructose): hormonal effects and their role in final oocyte maturation and egg quality in catfish *Heteropneustes fossilis*, Bloch. *Indian J. Exp. Biol.* 2004, 42, 1084-1090 (ISSN: 0019-5189). (IF 1.295).
2. **Mishra A**, Kumar A, Rawat A. Effect of cadmium sulphate on protein and carbohydrate level in brain and ovary of fresh water fish *Heteropneustes fossilis* (Bloch). *Indian Journal of Science and Technology* 2011, 4 (8), 253-254 (ISSN: 0974-6846). (NAAS 3.2)

3. Singh K & **Mishra A**. Effect of season on helminth parasitic prevalence, dominance, means intensity and abundance in some fresh water scaly fish. *Trends in Biosciences* 5 (1), 2012, 25-30 (ISSN: 0976-2485). (NAAS 2.7)
4. Yogita Devi & **Abha Mishra**. Histopathological alterations in gill and liver anatomy of fresh water, air breathing fish *Channa punctatus* after pesticide hilban[®] (chlorpyrifos) treatment. *Advances in BioResearch*. vol. 4 [2] 2013 (ISSN: 0976-4585).
5. Yogita Devi & **Abha Mishra**. An economic artificial laboratory feed for freshwater fishes and its impact on growth rate of *Channa punctatus* (Adult and Fry). *The Ecscan (An International Biannual Journal of Environmental Sciences)* 7 (1&2): 83-86. 2013.
6. KC Yadav, **A Mishra**, S Raizada, V Sahu, PP Srivastava. Influence of formulated diet on survival and growth of giant snakehead, *Channa marulius* reared in pond condition. *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences* 2016. 86(1):97–103 (IF 0.396) Doi 10.1007/s40011-014-0414-8. ISSN 0369-8211.
7. **Abha Mishra** and Parmeshwar Singh (2015). Effect of chlorpyrifos pesticide in non-target animals. (In Hindi) *Kahar*, 2(4). 20-21. ISSN 2394-3912.
8. Kailash Chandra Yadav, Sudhir raizada and **Abha Mishra** (2016). Study of gonadosomatic index of male and female giant snakehead fish, *Channa marulius* (Hamilton, 1822). *J Exp. Zool. India*, 19(2), 719-721. ISSN 0972-0030
9. Ravi Kiran, Sutanu Maji and **Abha Mishra** (2017). Effect of fish waste, fish guano and compost on growth, yield and quality of Broccoli (*Brassica oleracea* var. *italica*). *Indian Journal of Ecology*, 44(1): 120-123. ISSN 03045250

Book Chapters:

- 1) **Abha Mishra**, Sarita Gupta, Sneha Verma, Anurag Rawat (2014). Comparative study of fish guano and fertilizer formulations on vegetative growth of temperate crop (Tomato). In, *Functional Biology and Biotechnology*. Eds. Serajuddin, Tripathi and Arshad, Published by Excellent Publishing House, New Delhi. Page No. 61-63, ISBN: 978-93-83083-58-9.
- 2) **Abha Mishra**, Harshita Pandey (2014). Histopathological effects of chlorpyrifos, an organophosphate insecticide, on ovary of fresh water teleost *Channa punctatus* during pre-spawning season. In, *Biodiversity and Environment*. Eds. Serajuddin, Tripathi, Kanaujia

and Arshad. Published by Excellent Publishing House, New Delhi. Page No. 86-88, ISBN: 978-93-83083-57-2.

3) Akhilesh Kumar, **Abha Mishra**, Amita Kanaujia (2014). Effect of sub-lethal concentration of cadmium sulphate on behavior and morphology of fresh water catfish, *Heteropneustes fossilis* (Bloch) in Lucknow, India. In, ***Biodiversity and Environment***. Eds. Serajuddin, Tripathi, Kanaujia and Arshad. Published by Excellent Publishing House, New Delhi. Page No. 189-194, ISBN: 978-93-83083-57-2.

4) **Mishra Abha** and Uttam Kumar Sarkar. 2015. Perspectives of gonadal maturation in tropical fish: A review. In: ***Advances in Fish Research***, Vol.V, pp. 15–30. Edited by: U.C. Goswami. Narendra Publishing House, Delhi, India. 360 pp. ISBN No. 978-93-80428-58-1.

Invited Talk

1. Abha Mishra. Toxicological effect of organophosphorous pesticide, chlorpyrifos, on fresh water teleost *Channa punctatus* (Bloch). In, The Indian Science Congress Association - Sagar Chapter, “National symposium on Frontiers in Modern Biology (Technology Transfer, knowledge Translation and social Transformation) “Innovations in Science and Technology for Inclusive Development” March 24-25, 2014.

2. Abha Mishra. Teratogenic effect of chlorpyrifos in fresh water fish. The Indian Science Congress Association 14, Dr Biresh Guha Street, Kolkata-700017, University of Mumbai, 3-7 January 2015.

Conference/Seminar Attended

A. National

1. XXI-Symposium of the Society for Reproductive Biology & Comparative Endocrinology, Varanasi, INDIA, 10-13 February 2003.

2. ISCE 2005, National Symposium on Comparative Endocrinology and Reproductive Physiology: Retrospect and Prospect, New Delhi, INDIA, 17-19 November 2005.

3. XXV National Symposium on Reproductive Biology & Comparative Endocrinology, Thiruvananthapuram, INDIA, 15-17 January 2007.

- 4.** National Symposium on An Update of Reproductive Endocrinology: Novel and Applied Strategies, Varanasi, INDIA, 26-28 February 2007.
- 5.** National Seminar on Current Issues on Applied Zoology and Environmental Sciences with Special Reference to Eco-restoration and Management of Bioresources (SCIAZE), Lucknow, INDIA, 7-9 December, 2007.
- 6.** 19th All India Congress of Zoology, National Seminar on “Biodiversity and Human Welfare”, Gauhati University, Guwahati, Assam, 29-31 December, 2008.
- 7.** 20th All India Congress of Zoology, National Seminar on “Bioresources and its Management for Food, Livelihood and National Helminthological Congress”, Central Institute of Fisheries Education, Versova, Mumbai, 29-31 December, 2009.
- 8.** National Seminar on Biodiversity, Ecosystems and Climate Change: The Challenge Ahead”. National Bureau of Fish Genetic Resources, Lucknow, 4-6th December 2010.
- 9.** 21st All India Congress of Zoology and National Seminar on “Biodiversity Conservation with Special Reference to Fisheries and its Management for Food, Livelihood and Environmental Security”, Central Inland Fisheries Research Institute, Barrackpore, Kolkata, India, 21st -23rd December 2010.
- 10.** 15th Indian Agricultural Scientists and Farmers Congress on Agriculture and Global Climate Change. Bioved Research Institute of Agriculture and Technology, Allahabad, 22-24 Feb 2013.
- 11.** National Symposium on Innovative and Modern Technologies for sustainable agriculture and rural development. By Society of Biological Sciences and Rural Development, Allahabad 19-20 October 2013
- 12.** 1st Lucknow Science Congress, BBAU, Lucknow, India, 20-21 March, 2013.
- 13.** 101st Indian Science Congress, by The Indian Science Congress Association, Kolkata at University of Jammu, Jammu. 3-7 February 2014.
- 14.** National Symposium on Frontiers in Modern Biology ‘Innovations in Science and Technology for Inclusive Development’. The Indian Science Congress Association, Sagar Chapter By Department of Zoology, Dr H.G.C. University, Sagar, India. 24-25 March 2014.
- 15.** 2nd Lucknow Science Congress, Leveraging Science and Innovation for Development BBAU, Lucknow, India, 27-28 March, 2014.

16. The Indian Science Congress Association 14, Dr Biresh Guha Street, Kolkata-700017, University of Mumbai, 3-7 January 2015.

B. International

1. International Conference on Biotechnology and Neuroscience, Cochin, INDIA, 29-31 December 2004.

2. International Symposium on Endocrinology and Reproduction: Molecular Mechanisms to Molecular Medicine”, Jawaharlal Nehru University New Delhi, India, 4-6 February 2010.

3. 9th International Symposium on Reproductive Physiology of Fish, Cochin, India, August 9-14, 2011

4. International Conference on Environmental Technology and sustainable development: Challenges and Remedies. By Department of Environmental Science, BabaSaheb Bhimrao Ambedkar University, Lucknow. 21-23 February 2014.

5. National Conference on Information Security Challenges (NCISC-2014). By Department of Information Technology, Babasaheb Bhimrao Ambedkar University, Lucknow on 28th March 2014

6. International Conference on Faunal Biodiversity and their Conservational Strategies. By Zoology Department, Lucknow University, Lucknow. 22-23 March 2014.

7. 10th International Symposium on Reproductive Physiology of Fish. Olhao, Portugal, 25-30 May 2014.

8. International Symposium on “Biodiversity: Status, Utilization and Impact of Challenging Climatic Conditions”, by Babasaheb Bhimrao Ambedkar University, Lucknow. 30-31 October, 2014.

9. International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

Abstracts / Proceedings

1. **Mishra A** and Joy KP. Induction of oocyte final maturation in the catfish *Heteropneustes fossilis* by catecholestrogens and catecholamines. XXI- Symposium of the Society for Reproductive Biology & Comparative Endocrinology, Varanasi, INDIA, 10-13 February 2003.
2. Joy KP and **Mishra A**. HCG-induced final oocyte maturation and ovulation in a catfish: interaction with spino-sympathetic nervous system. International Conference on Biotechnology and Neuroscience, Cochin, INDIA, 29-31 December 2004.
3. **Mishra A** and Joy KP. Involvement of mitogen-activated protein kinase in 2-hydroxyestradiol-17 β -induced oocyte maturation in the catfish *Heteropneustes fossilis* and a note on possible interaction with protein phosphatases. ISCE 2005, National Symposium on Comparative Endocrinology and Reproductive Physiology: Retrospect and Prospect, New Delhi, INDIA, 17-19 November 2005.
4. **Mishra A**, Chaube R and Joy KP. Catecholaminergic innervation of catfish (*Heteropneustes fossilis*) ovary and its physiological significance. XXV National Symposium on Reproductive Biology & Comparative Endocrinology, Thiruvananthapuram, INDIA, 15-17 January 2007.
5. **Mishra A** and Joy KP. Involvement of protein phosphatases in catecholestrogen-induced oocyte maturation in the catfish *Heteropneustes fossilis*. National Symposium on An Update of Reproductive Endocrinology: Novel and Applied Strategies, Varanasi, INDIA, 26-28 February 2007.
6. Singh K and **Mishra A**. Lethal and toxic effect of formalin treatment on fry of snakehead fish (*Channa punctatus*). National Seminar on Current Issues on Applied Zoology and Environmental Sciences with Special Reference to Eco-restoration and Management of Bioresources (SCIAZE), Lucknow, INDIA, 7-9 December, 2007.
7. Jaiswal K, Singh RK, **Mishra A**, Devi Y. Toxic effect of pesticide sumithion on serum glutamate oxaloacetate transaminase (SGOT) level of *Channa punctatus* National Seminar on Current Issues on Applied Zoology and Environmental Sciences with Special Reference to Eco-restoration and Management of Bioresources (SCIAZE), Lucknow, INDIA, 7-9 December, 2007.
8. Singh K and **Mishra A**. Helminth parasite induced changes in the total protein content of air breathing fish *Channa punctatus*. 19th All India Congress of Zoology, National Seminar on "Biodiversity and Human Welfare", Gauhati University, Guwahati, Assam, 29-31 December, 2008.

9. Singh K and **Mishra A.** A Study Showing Infection Intensity and Changes in Carbohydrate Content in Various Tissues of *Channa Punctatus* (Bloch.) Due to Helminth Parasites. 20th All India Congress of Zoology, National Seminar on “Bioresources and its Management for Food, Livelihood and National Helminthological Congress”, Central Institute of Fisheries Education, Versova, Mumbai, 29-31 December, 2009.

10. B. T. Kaushal and **A. Mishra.** Toxic effect of Cadmium compounds (-Chloride, - Sulphate and -Nitrate) on air breathing freshwater fish Channa punctatus (Bloch, 1793): A comparative toxicity analysis on morphological and behavioral changes. National Bureau of Fish Genetic Resources, Lucknow, 4-6th December 2010.

11. Yogita Devi and **Abha Mishra.** Effect of chlorpyrifos on lethality, behavior and morphology of fresh water fish *Channa punctatus* (Bloch., 1793). 21st All India Congress of Zoology and National Seminar on “Biodiversity Conservation with Special Reference to Fisheries and its Management for Food, Livelihood and Environmental Security”, Central Inland Fisheries Research Institute, Barrackpore, Kolkata, India, 21st -23rd December 2010.

12. Yogita Devi and **Abha Mishra.** Changes in biochemical profiling of blood serum of fresh water fish *Channa punctatus* due to Hilban (20% EC Chlorpyrifos) treatment. National Seminar on Current Challenges of Pharmacy Education and Research, Rameshwaram, Institute of Technology and Management, IPGA U.P. State Branch, Ganna Sansthan, Dalibagh, Lucknow, India, 16th April 2011.

13. **Abha Mishra** and Anurag Rawat. Effect of cadmium sulphate on tissue histology of fresh water fish *Heteropneustes fossilis* (Bloch). National Symposium on Prospects, Utility and Challenges of Biotechnology in Agricultural Development by Society of Biological Sciences and Rural Development, Allahabad, India, 11-12 November, 2011.

1. Effect of Cadmium Sulphate on Tissue Histology Of Fresh Water Fish *Heteropneustes Fossilis* (Bloch). Prospects, Utility and Challenges of Biotechnology in Agriculture Development. Society of Biological Sciences and Rural Development Allahabad, India, 11-12 November 2011

2. Yogita Devi and **Abha Mishra.** Alteration of behavioural and Morphological responses of fry of *Channa punctatus* treated with Chlorpyrifos. 32nd Annual Session of the Academy of Environmental Biology and National Seminar on “Emerging pollutants and pathogens: Challenges and Risk Reduction” by Academy of Environmental Biology and Indian Institute of Toxicology Research, Lucknow, India, 20-22 September, 2012.

3. **Abha Mishra**, Anurag Rawat, Sneha Verma. A comparative study showing sexual maturity levels in breeding season of butter catfish, *Ompok bimaculatus* (Bloch) of different

rivers in India. National Conference on Advances in Biosciences and Health Education (ABHE-2013) by Dept of Zoology, Bareilly College, Bareilly.

4. Bela T. Kaushal and **Abha Mishra**. Histopathology and bioaccumulation of cadmium chloride by different organs of freshwater fish *Channa punctatus* in respect to short-term and long-term exposure period. 1st Lucknow Science Congress, BBAU, Lucknow, India, 20-21 March, 2013.

5. **Abha Mishra**, Sneha Verma, Anurag Rawat. Relation of gonadal protein content with gonadosomatic index in male and female of *Ompok bimaculatus* (Bloch, 1794) in Gomti river, Lucknow. (No. 048) 1st Lucknow Science Congress, BBAU, Lucknow, India, 20-21 March, 2013.

6. **Abha Mishra**, Anurag Rawat, Sneha Verma. Best strain evaluation in *Ompok bimaculatus* (Bloch, 1794) of different Indian Rivers by protein estimation. (No. 049) 1st Lucknow Science Congress, BBAU, Lucknow, India, 20-21 March, 2013.

7. H. Pandey & **A. Mishra**. Effects of different concentrations of an organophosphate pesticide on survival, behavior, and morphology of fresh water fish *Channa punctatus*. National Symposium on Innovative and Modern Technologies for Sustainable Agriculture and Rural Development. Society of Biological Sciences and Rural Development. Allahabad, India, 19-20 October, 2013.

8. J. Pandey & **A. Mishra**. Effects of sublethal dose of cadmium sulphate in total carbohydrate and protein content of liver, kidney, gill, intestine and stomach of fresh water catfish, *Heteropneustes fossilis*(Bloch). National Symposium on Innovative and Modern Technologies for Sustainable Agriculture and Rural Development. Society of Biological Sciences and Rural Development. Allahabad, India, 19-20 October, 2013.

9. **A. Mishra**, Y. Kumar and H. Pandey. Effects of tannery raw effluent on anatomy of liver, intestine and stomach of fresh water fish *Heteropneustes fossilis*. International conference on Environmental technology and sustainable development: challenges and remedies Lucknow. February 21- 23, 2014.

10. **Abha Mishra**, Sarita Gupta, Sneha Verma, Anurag Rawat. Impact of fish guano on reproductive parameters of temperate crop (Tomato). International conference on environmental technology and sustainable development: challenges and remedies. 21-23 February 2014.

11. **Abha Mishra**, Sarita Gupta, Sneha Verma, Anurag Rawat. Comparative study of fish guano and fertilizer formulations on vegetative growth of temperate crop (Tomato).

International conference on faunal biodiversity and their conservational strategies. 22-23 March 2014.

12. H. Pandey, **A. Mishra**. Histopathological effects of chlorpyrifos, an organophosphate insecticide, on ovary of fresh water teleost *Channa punctatus* during pre-spawning season. International conference on faunal biodiversity and their conservational Strategies. Lucknow University. March 22-23, 2014.

13. **Abha Mishra**, Jalil Ahmed, Anurag Rawat, Sneha Verma. Effect of organophosphate, chlorpyrifos on anatomy of stomach and intestine of fresh water fish *ompok bimaculatus* (bloch, 1794). 2nd Lucknow Science Congress. March 27-28, 2014.

14. **Mishra, A.** Verma, S. and Rawat A. Teratogenic effects of organophosphorous pesticide, chlorpyrifos, on freshwater catfish, *Heteropneustes fossilis* (Bloch). 10th International Symposium on Reproductive Physiology of Fish. Olhao, Portugal, 25-30 May 2014.

15. **Abha Mishra**, Sarita Gupta, Sneha Verma and Anurag Rawat. Assessment of interactions of plant growth with fish guano, an organic fertilizer. International Symposium on Innovations in Horticulture for Nutritional Security, Conserving Biodiversity and Poverty Alleviation. October 16-18, 2014. Department of Applied Plant Sciences (Horticulture), BBAU, Lucknow, India.

16. Sneha Verma, **Abha Mishra**, Anurag Rawat. A Behavioural and Morphological Assessment of the freshwater catfish, *Heteropneustes fossilis* (Bloch, 1794) After the exposure of organophosphorous pesticide, Chlorpyrifos. National Conference on Challenges for Sustainability of Natural Resources and Environment with Emphasis on Aquatic Ecosystem for Livelihood Security. October 10-12, 2014 GB Pant University of Agriculture and Technology, Pant Nagar, Uttarakhand.

17. Anurag Rawat, **Abha Mishra**, Sneha Verma. Identification of Ovarian Protein level in Freshwater Butter Catfish, *Ompok bimaculatus* (Bloch, 1794) of the Ganga River and its Tributaries During Spawning Season. National Conference on Challenges for Sustainability of Natural Resources and Environment with Emphasis on Aquatic Ecosystem for Livelihood Security. October 10-12, 2014 GB Pant University of Agriculture and Technology, Pant Nagar, Uttarakhand.

18. Sneha Verma, **Abha Mishra**, Anurag Rawat. Effect of Organophosphorous Pesticide, Chlorpyrifos to spinal malformations in hatchlings of Fresh water catfish *Heteropneustes fossilis* (Bloch 1794). International Symposium on "Biodiversity: Status, Utilization and

Impact of Challenging Climatic Conditions”, by Babasaheb Bhimrao Ambedkar University, Lucknow. 30-31 October, 2014.

19. Harshita Pandey and **Abha Mishra**. Nephrotoxic effects of Hilban, an organic insecticide, on fresh water fish *Channa punctatus* (Bloch 1793). International Symposium on “Biodiversity: Status, Utilization and Impact of Challenging Climatic Conditions”, by Babasaheb Bhimrao Ambedkar University, Lucknow. 30-31 October, 2014.

20. Anurag Rawat, **Abha Mishra** and Sneha Verma. Characterization of mature ovary of *Ompok bimaculatus* (Bloch 1794) from Indian Riverine System. International Symposium on “Biodiversity: Status, Utilization and Impact of Challenging Climatic Conditions”, by Babasaheb Bhimrao Ambedkar University, Lucknow. 30-31 October, 2014.

21. **Mishra A**, Mishra N, Keshari N, verma S. Toxicity evaluation of organophosphate pesticide, Chlorpyrifos, on biochemical, histology and hematological alterations on ovary of freshwater catfish *Ompok bimaculatus* (Bloch, 1794). International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

22. Rawat A, **Mishra A**, Verma S. Captive breeding of freshwater catfish *Ompok bimaculatus* (Bloch, 1794) using different hormones. International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

23. Singh P and **Mishra A**. Biochemical and anatomical alteration study by histochemistry in ovary of fresh water fish after chlorpyrifos treatment. International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

24. Verma S, **Mishra A**, Rawat A. Impact of an organophosphate pesticide, chlorpyrifos, on MIS and Pregnenolone level in the ovary of freshwater catfish *Heteropneustes fossilis* (bloch, 1794). International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

25. Pandey H and Mishra A. In vitro assessment of toxicity potential of chlorpyrifos an organophosphate insecticide, on embryo of fresh water fish *Channa punctatus*. International symposium on Reproductive Biology and Comparative Endocrinology, by Department of Zoology, Banaras Hindu University, Varanasi, India, 25-27 February 2015.

26. Sneha Verma, **Abha Mishra**, Anurag Rawat. Chlorpyrifos: a life threatening chemical for fish. International Symposium on Innovation in Animal Sciences for Food Security,

Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

27. Anurag Rawat, **Abha Mishra**, Sneha Verma. Induced breeding of near threatened catfish *Ompok bimaculatus* (Bloch, 1794) using synthetic hormone HCG. International Symposium on Innovation in Animal Sciences for Food Security, Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

28. Savita and **Abha Mishra**. Histopathological impact of organophosphate insecticide, Hilban on intestine of fresh water teleost fish *Channa punctatus*. International Symposium on Innovation in Animal Sciences for Food Security, Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

29. Abhisweta Singh and **Abha Mishra**. Carbofuran toxicity on fish biology. International Symposium on Innovation in Animal Sciences for Food Security, Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

30. Kailash Chandra Yadav, Sudhir Raizada, **Abha Mishra** and Vikash Sahu. Study of morphological, anatomical and histological reproductive traits in *Channa marulius* (Hamilton 1822). International Symposium on Innovation in Animal Sciences for Food Security, Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

31. **Abha Misra** and Parmeshwar Singh. Effect of Chlorpyrifos on gonad and fry development in fresh water fish *Channa punctatus*. International Symposium on Innovation in Animal Sciences for Food Security, Health Security and Livelihood-2015 and 26th All India Congress of Zoology. 29-31 October 2015.

32. Anurag Rawat, **Abha Mishra** and Sneha Verma. Comparative study of reproductive traits of near threatened butter catfish *Ompok bimaculatus* (Bloch, 1794) in Ghaghara, Ramganga and Sharda River during breeding season. National conference on science for society an interdisciplinary approach and 3rd Lucknow Science Congress LUSCON-2015. 31st October - 2nd November, 2015.

33. Sneha Verma, **Abha Mishra** and Anurag Rawat. Toxic impact of Chlorpyrifos, on the ovarian protein content of freshwater catfish *Heteropneustes fossilis* (Bloch, 1794).

National conference on science for society an interdisciplinary approach and 3rd Lucknow Science Congress LUSCON-2015. 31st October - 2nd November, 2015.

34. Savita and **Abha Mishra**. Histological impact of organophosphate insecticide, Hilban on stomach of fresh water teleost fish *Channa punctatus*. National conference on science for society an interdisciplinary approach and 3rd Lucknow Science Congress LUSCON-2015. 31st October - 2nd November, 2015.

35. Abhisweta Singh, Dinesh Kumar Singh and **Abha Mishra**. Effect of Neem leaves extract (*Azadirachta indica*) on the life cycle of *Drosophila melanogaster*. National conference on science for society an interdisciplinary approach and 3rd Lucknow Science Congress LUSCON-2015. 31st October - 2nd November, 2015.

36. Kailash Chandra Yadav, **Abha Mishra**, Sudhir Raizada and Vikash Sahu. Study on gonado-somatic index of *Channa marulius* (Hamilton, 1822) reared in captive condition in North India. National conference on science for society an interdisciplinary approach and 3rd Lucknow Science Congress LUSCON-2015. 31st October - 2nd November, 2015.

37. Sneha Verma, **Abha Mishra** and Anurag Rawat. Effect of human chorionic gonadotropin on oocyte meiotic maturation in freshwater catfish *Heteropneustes fossilis* (Bloch, 1794). National conference on environmental impact on health and its management: Eco- friendly strategies and XXVII All India congress of zoology. February 8-10, 2016.

38. Anurag Rawat, **Abha Mishra** and Sneha Verma. Characterization of mature testis of freshwater catfish *Ompok bimaculatus* (Bloch, 1794) from Gomati river, U.P. National conference on environmental impact on health and its management: Eco- friendly strategies and XXVII All India congress of zoology. February 8-10, 2016.

39. **Abha Mishra**, Shadab Ahmed, Abhisweta Singh, Anurag Rawat, Sneha Verma. Effect of domestic waste water on behaviour and morphology of fresh water catfish *Heteropneustes fossilis* (Bloch 1794). 3rd National Conference & Exhibition “Advances in Biosciences and Health Education (ABHE-2016)” to be held on 27th Feb, 2016 at Bareilly College, Bareilly.

40. **Abha Mishra**, Apoorva Srivastava, Anurag Rawat, Sneha Verma. Effect of organophosphorous pesticide, Hilban® on the olfactory bulb of fresh water catfish *Heteropneustes fossilis* (Bloch 1794). 3rd National Conference & Exhibition “Advances in

Biosciences and Health Education (ABHE-2016)” to be held on 27th Feb, 2016 at Bareilly College, Bareilly.

41. Sneha Verma, Abha Mishra, Anurag Rawat. Embryotoxicity of the organophosphate pesticide, chlorpyrifos in freshwater catfish, *Heteropneustes fossilis* (Bloch 1794). 3rd National Conference & Exhibition “Advances in Biosciences and Health Education (ABHE-2016)” to be held on 27th Feb, 2016 at Bareilly College, Bareilly.

42. Abha Mishra and Ramesh. A survey studies on gender status and potential for entrepreneurship in small scale fish trade. 86th Annual session at Dehradun on December 2-4, 2016, the National Academy of Sciences, India.

43. Abha Mishra. Secondary income from non-edible parts of fish trade. International Seminar on Recent Trends and Experimental Approaches in Science, Technology and Nature held at IISR Auditorium, Lucknow, By Society for Science and Nature and Oura Prakashan, December 23, 24, 2016.

44. Abha Mishra. Chlorpyrifos effects on oocyte maturation and ovulation of fresh water fish, *Heteropneustes fossilis*. International Conference on Reproductive Biology and Comparative Endocrinology (ICRBCE). At University of Hyderabad, 9-11 Feb 2017

45. Abha Mishra, Abhisweta Singh. Chlorpyrifos : a cancer risk agent? International Conference on update in Cancer Prevention and Research. BBAU, Lucknow, 14-16 Feb 2017.

Training / Workshop/Orientation Course /Refresher Course Attended

1. Training course on “Application of Research Techniques in Reproductive Biomedicine” organized by National Institute of health and Family Welfare, New Delhi, INDIA, from 6-17 January 2003.
2. Workshop on “Advanced Techniques in Reproductive Endocrinology and Fertility Management” organized by Department of Zoology, Banaras Hindu University, Varanasi, INDIA, from 6-19 December 2003.

3. Orientation program conducted by University of Lucknow, from 1-28 June 2007.
4. Refresher course conducted by University of Lucknow, from 9-30 January 2010.
5. Training Course on “Fish Cell Culture and Its Applications” organized by Central Institute of Fisheries Education, Mumbai, from 17 - 24 January 2011.
6. Work shop on “Placement and Employment Prospects in Indian Patent offices and Hand on Training for Patenting the Research Work” on 18th March 2013 at BBAU, Lucknow.
7. Work shop on “Use of Post Harvest Management Techniques in Horticultural Crops” held on 31st March and 1st April, 2014 by Department of Applied Plant Science (Horticulture), BBAU, Lucknow.
8. Hands-on-Training on SEM, FTIR, FPLC and Ion Chromatography by University Science Instrumentation center, Babasaheb Bhimrao Ambedkar University, Lucknow, February 18-20, 2015.
9. Summer School conducted by University of Allahabad, from 1-21 June 2015.

Membership of Professional Bodies & Societies :

1. Life membership of “Indian Science Congress”, Membership No. L 12170.
2. Life membership of “Society for Reproductive Biology and Comparative Endocrinology (SRBCE)” in Feb 2010. Membership No.
3. Life membership of “Aquatic Biodiversity Conservation Society” in August 2010. Membership No. ABCS/L/G-155.
4. Life Membership of “The Zoological Society, Kolkata” in January 2011. Membership No.
5. Life Membership of “Society of Biological Sciences and Rural Development (SBSRD) (National Academy of Biological Sciences and Rural Development)” in 20August 2013, Membership No.153
6. Life membership of “Society for Science and Nature”, December 2016. Membership No. SFSN/2016-17/L-038.

7. External member of Women Complain Cell of NBFGR, Lucknow for three years (2016-2019)
8. Member of Academic Council under Chapter II clause 1 of the Academic ordinance of the University for three year (2015-2018).
9. Member of School Board of SB & BT under Chapter II clause 1 of the Academic ordinance of the University for three year (2017-2020).

GUIDANCE OF Ph.D./DISSERTATIONS

Successfully guided three Ph. D. students:

1. **Seasonal distribution of helminth parasites and their effect on biochemical profile of scaly and catfish.** Krishna Singh, Enrolment No. 1311/07, 2011.(2014)
2. **Toxicological effect of organophosphorous pesticide, chlorpyrifos on survival, histology and biochemical aspects of fresh water teleost, *Channa punctatus* (Bloch).** Ms. Yogita Devi, Enrolment No. 1267/08, 2013. (2015)
3. **A comparative study of sublethal effect of cadmium composition on different tissues of freshwater fish *Channa punctatus*.** Bela Turkey Kaushal, Date of Registration: 21st August 2008, Date of Thesis Submission: 5th March 2013, Enrolment Number: 124/08. (2015)
4. **Study on reproductive Biology, captive breeding, larval rearing and grow-out of giant snakehead, *Channa marulius* (Hamiltorn, 1822) as Co-guide with Prof Sudhir Raizada (Asst Director General, ICAR, New Delhi). Mr. Kailash Chandra Yadav (Registration: 17st October 2013, Date of Thesis Submission: 1st August 2016, Enrolment Number: 922/13.**
5. Ms. Sneha Verma (Reserved category): Given Pre-Phd Seminar to DRC. 2017
6. Mr. Anurag Rawat (Reserved Category): Given Pre-Phd Seminar to DRC. 2017

DISSERTATION COMPLETED

- 1) Promod Kr. Singh, 2007. "Cultivation of secondary host food plant of Tasar silkworm under Lucknow climatic condition".
- 2) Shashank Sahay, 2007. "Cultivation of secondary food plants of Eri silk worm."
- 3) Akhilesh Kumar, 2010." Toxicological effect of cadmium sulphate on behaviors, bioaccumulation and tissue protein and carbohydrate level in fresh water fish *Heteropneustes fossilis*."
- 4) Anurag Rawat, 2010." Effect of cadmium sulphate on histology of skin, gill, liver, kidney, stomach and intestine of fresh water fish, *Heteropneustes fossilis* (Bloch)."
- 5) Jyoti Pandey, 2010." Effect of sub lethal dose of cadmium sulphate in carbohydrate and protein level of liver, kidney, gill, intestine and stomach of fresh water fish *Heteropneustes fossilis*(Bloch) ."
- 6) Santosh Kumar, 2010."Effect of methomyl on histology of stomach and intestine of freshwater fish, *Channa punctatus* (Bloch)."
- 7) Sunil Kumar Bharti,2011" Histopathological and biochemical changes in the ovary of freshwater fish, *Channa punctatus* (Bloch) after the lannate (Carbamate, insecticide) treatment.
- 8) Ravindra Kumar, 2011" Toxicological effect of methomyl on the behavior and histological changes in liver of fresh water fish."
- 9) Surendra Kumar, 2011." Effect of methomyl on the histology of gill and kidney of fresh water fish *Channa punctatus* (Bloch)."
- 10) Sarita Gupta, 2013." Effect of fish guano on temperate vegetables (Tomato)."
- 11) Nidhi Mishra, 2013." Effect of chlorpyrifos on haematology of *Ompok bimaculatus*."

- 12) Neetu Keshari, 2013." Effect of Hilban (EC 20% CPF) on biochemical estimation of different tissue of *Ompok bimaculatus* (Pabda)."
- 13) Jalil Ahmad, 2013." Histopathological effect of chlorpyrifos on intestine, stomach and liver of *Ompok bimaculatus*(Pabda)."
- 14) Yashwant Kumar, 2013." Effect of tannery raw effluent on histology of intestine, liver and stomach of fresh water fish *Heteropneustes fossilis*."
- 15) Vibha Sahu, 2013."Effect of different concentration of an organophosphate pesticide on histology of liver and kidney of freshwater fish *Channa punctatus*".
- 16) Shadab Khan, 2014." Effects of domestic waste water on behaviour and morphology of *Heteropneustes fossilis*."
- 17) Rajesh Kumar Gautam, 2014." Effect of chlorpyrifos on survival, morphology and behaviour of freshwater catfish *Heteropneustes fossilis*(Bloch)."
- 18) Kavendra Kr. Singh, 2014." Effect of domestic waste water on anatomy of liver and intestine of fresh water catfish *Heteropneustes fossilis*."
- 19) Savita, 2014." Histopathological impact of organophosphate insecticide, Hilban on intestine, stomach and fore brain of fresh water teleost fish *Channa punctatus*."
- 20) Pinky Rani 2015. Characterization of scaly and scaleless fish skin by scanning electron microscopy.
- 21) Nitin Kumar 2015. General fish behaviour study of *Heteropneustes fossilis*.
- 22) Ramesh 2015. Gender status in fish trade: a survey study based on major fish market of lucknow.
- 23) Pratima 2015. Biodiversity of arthropoda in BBAU campus during winter season.

24) Anita Singh, 2016. Toxicological effect of chromium on antioxidant enzymatic activities in brain, gill and liver of freshwater fish *Channa punctatus* (Bloch, 1793).

25) Anshika Dubey, 2016. Toxic effect of potassium dichromate on the behavior, morphology and hematological parameter of fresh water fish *Channa punctatus* (Bloch 1793).

26) Kanak Sharma, 2016. Toxicological effect of hexavalent chromium on Bioaccumulation in brain, heart, intestine, muscle and stomach of *Channa punctatus* (Bloch, 1793).

27) Roshni Devi, 2016. Bioaccumulation of hexavalent chromium on gill, liver and trunk kidney of freshwater fish *Channa punctatus* (Bloch, 1793).

Ph. D. students continuing their research work.

Ph.D. students are registered at present.

1. Ms. Abhisweta Singh (General)

Place:-Lucknow

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