




## Faculty Details proforma for DU Web-site

Name	Prof. Umesh Rai		
Designation	Professor		
Department	Zoology		
Address (Campus)	Department of Zoology, University of Delhi, Delhi-110007		
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Email	rai_u@rediffmail.com		
Education			
<b>Subject</b>	<b>Institution</b>	<b>Year</b>	
Ph.D. in Zoology	BHU, Varanasi	1986	
M.Sc. Zoology	Gorakhpur University	1980	
Career Profile			
2006-till date: Professor, Department of Zoology, University of Delhi			
1998-2006: Reader, Department of Zoology, University of Delhi			
1992-1998: Lecturer, Department of Zoology, University of Delhi			
1988-1992: CSIR – Research Associate, Department of Zoology, Banaras Hindu University			
Administrative Experience			
<b>Organization / Institution</b>	<b>Designation</b>	<b>Duration</b>	
University of Delhi, South Campus	Director	2011 to 2016	
Department of Zoology, University of Delhi	Head	January, 2020- till date	
Research Guidance (Since 2003)			
<u>Supervision of Doctoral Thesis:</u>			
A. Ph.D. awarded - 13			
B. Under progress- 05			
<u>Supervision of M.Phil. dissertations:</u>			
A. Awarded – 2			
B. M.Sc. Zoology (IV- Semester) Students dissertation-on average 4-5/year since 2011			

Publications (Recent)

In Indexed/ Peer Reviewed Journals

<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>	<u>Co-Author</u>
2020	Reproductive phase-dependent variation, sexually dimorphic expression and sex steroids-mediated transcriptional regulation of <i>lep</i> and <i>lepr</i> in lymphoid organs of <i>Channapunctata</i>	Scientific Reports	Bakshi A
2019	Tissue-specific sexual dimorphism in the expression of kisspeptin and its receptors in spotted snakehead <i>Channa punctatus</i>	Current Science	Bakshi A
2018	In silico analysis, temporal expression and gonadotropic regulation of receptors for follicle-stimulating hormone and luteinizing hormone in testis of spotted snakehead <i>Channa punctatus</i>	Journal of Fish Biology	Basak R, Roy A
2018	In silico analysis, seasonal variation and gonadotropic regulation of <i>jag1</i> and its receptor <i>notch1</i> in testis of spotted snakehead <i>Channa punctatus</i>	Gen. Endocrinol.	Roy A, Basak R
2018	Hormone induced differential transcriptome analysis of Sertoli cells during postnatal maturation of rat testes.	PLoS ONE	Gautam M, Bhattacharya I, Majumdar SS
2018	Divergence of protein sensing (TLR 4,5) and nucleic acid sensing (TLR 3,7) within the reptilian lineage.	Mol. Phylogenet. Evol.	Priyam M, Tripathy M, Ghorai SM
2017	Bisphenol A mediated effects on innate immunity in freshwater teleost spotted snakehead <i>Channa punctatus</i> murrel.	Fish. Sci.	Pandey M, Ghorai SM,
2017	Temporal expression and gonadotropic regulation of aromatase and estrogen receptors in the ovary of wall lizard, <i>Hemidactylus flaviviridis</i> : Correlation with plasma estradiol and ovarian follicular development.	Steroids	Tripathy M
2017	Repertoire of bone morphogenetic proteins and growth/differentiation factors in ovary of the Indian wall lizard ( <i>Hemidactylus flaviviridis</i> ) with emphasis on differential expression and gonadotropic regulation of <i>bmp15</i> and <i>gdf9</i> .	Gen. Endocrinol.	Tripathy M, Priyam M
2017	<i>De novo</i> sequencing and comparative analysis of testicular transcriptome from different reproductive	PLoS ONE	Roy A, Basak R

	phases in freshwater spotted snakehead <i>Channa punctatus</i> .		
<b>2017</b>	Purification and identification of 25-hydroxycholesterol in a reptile: Seasonal variation and hormonal regulation.	<b>Gen. Endocrinol.</b>	<b>Comp.</b> Singh V, Priyam M, Tripathy M
<b>2016</b>	A study of differential expression of testicular genes in various reproductive phases of <i>Hemidactylus flaviviridis</i> (wall lizard) to derive their association with onset of spermatogenesis and its relevance to mammals.	<b>PLoS ONE</b>	Sarkar H, Arya S, Rai U, Majumdar SS
<b>2016</b>	Tracing the evolutionary lineage of pattern recognition receptor homologues in vertebrates: An insight into reptilian immunity via de novo sequencing of the wall lizard splenic transcriptome.	<b>Veterinary Immunology and Immunopathology</b>	Priyam M, Tripathy M, Ghorai SM
<b>2016</b>	Seasonality of reproduction in male spotted murrel <i>Channa punctatus</i> : correlation of environmental variables and plasma sex steroids with histological changes in testis.	<b>Fish Physiol Biochem.</b>	Basak R, Roy A
<b>2014</b>	Quercetin supplementation restores testicular functions and augments germ cell survival in the estrogenized rats.	<b>Mol Cellular Endocrinol.</b>	Bharti S, Misro MM
<b>2013</b>	Transcriptome Analysis of Spermatogenically Regressed, Recrudescence and Active Phase Testis of Seasonally Breeding Wall Lizards <i>Hemidactylus flaviviridis</i> .	<b>PLoS ONE</b>	Gautam M, Mathur A, Khan MA, Majumdar SS
<b>2013</b>	Clomiphene citrate potentiates the adverse effects of estrogen on rat testis and down-regulates the expression of steroidogenic enzyme genes.	<b>Fertility and Sterility</b>	Bharti S, Misro MM
<b>2012</b>	Antileukemic potential of <i>Momordica charantia</i> seed extract on human myeloid leukemic HL60 cells.	<b>Evidence-based Complementary and alternative Medicine</b>	Soundararajan R, Prabha P, Dixit A
<b>2012</b>	Sex-dependent effects of the UCP1 -3826 A/G polymorphism on obesity and blood pressure.	<b>Ethn Dis. Spring</b>	Dhall M, Chaturvedi MM, Kapoor S
<b>2011</b>	Dynorphin regulates the phagocytic activity of splenic phagocytes in wall lizards: involvement of a $\kappa$ -opioid receptor-coupled adenylate-cyclase-cAMP-PKA pathway.	<b>J Exp Biol</b>	Kumar S
<b>2011</b>	$\beta$ -Endorphin inhibits phagocytic activity of lizard splenic phagocytes through $\mu$ receptor-coupled adenylate cyclase- protein kinase A signaling pathway	<b>Gen. Comp. Endocrinol.</b>	Kumar S, Mondal S

<b>2011</b>	Immunomodulatory role of substance P in the wall lizard <i>Hemidactylus flaviviridis</i> : An in vitro study.	<b>Neuropeptides</b>	Kumar S
<b>2011</b>	Neuropeptide Y, an orexigenic hormone, regulates phagocytic activity of lizard splenic phagocytes	<b>Peptides</b>	Kumar S
<b>2011</b>	Role of estrogen in regulation of spermatogenesis in the Indian wall lizard <i>Hemidactylus flaviviridis</i> .	<b>Gen. Comp. Endocrinol.</b>	Bharti S, Misro MM, Mathur A
<b>2011</b>	Immunomodulatory role of urotensins in teleost <i>Channa punctatus</i> .	<b>Gen Comp. Endocrinol</b>	Singh, R
<b>2010</b>	Opioid and non-opioid receptor-mediated immunoregulatory role of Leucine-enkephalin in teleost <i>Channa punctatus</i> .	<b>Fish &amp; Shellfish Immunology</b>	Singh, R
<b>2010</b>	Transcriptomic and non-transcriptomic signalling mechanism of cortisol in fishes.	<b>J Scientific Research</b>	Roy B
<b>2010</b>	Kappa-opioid receptor mediated modulation of innate immune response by dynorphin in teleost <i>Channa punctatus</i> .	<b>Peptides</b>	Singh R
<b>2009</b>	Delta opioid receptor mediated immunoregulatory role of methionine-enkephalin in freshwater teleost <i>Channa punctatus</i>	<b>Peptides</b>	Singh, R
<b>2009</b>	Genomic and non-genomic effect of cortisol on phagocytosis in freshwater teleost, <i>Channa punctatus</i> : an in vitro study.	<b>Steroids</b>	Roy B,
<b>2008</b>	Diurnal variation in phagocytic activity of splenic phagocytes in freshwater teleost <i>Channa punctatus</i> : melatonin and its signalling mechanism.	<b>Gen. Comp. Endocrinol.</b>	Roy B, Singh R, Kumar S
<b>2008</b>	Paracrine role of testicular macrophages in control of Leydig cell activities in the wall lizard, <i>Hemidactylus flaviviridis</i> .	<b>Gen. Comp. Endocrinol.</b>	Khan UW
<b>2008</b>	Role of adrenoceptor-coupled second messenger system in sympatho-adrenomedullary modulation of splenic macrophage functions in live fish, <i>Channa punctatus</i> .	<b>Gen Comp Endocrinol</b>	Roy, B.
<b>2008</b>	Role of gonadotropin and Leydig cell-secreted paracrine factors in the control of testicular macrophage activity in the wall lizard <i>Hemidactylus flaviviridis</i> .	<b>Develop. Comp. Immunol.</b>	Khan UW
<b>2008</b>	Beta-endorphin regulates diverse functions of splenic phagocytes through different opioid receptors in freshwater fish <i>Channa punctatus</i> (Bloch):an in vitro study.	<b>Dev Comp Immunol</b>	Singh R

2007	Differential effects of histamine on Leydig cell and testicular macrophage activities in wall lizards: precise role of H1/H2 receptor subtypes.	<b>J. Endocrinology</b>	Khan UW
2006	Cellular mechanism of estrogen-induced thymic involution in wall lizard: caspase-dependent action	<b>J ExpZool</b>	Hareramadas, B
2005	Mechanism of androgen-induced thymic atrophy in the wall lizard <i>Hemidactylusflaviviridis</i> : an in vitro study.	<b>Gen. Comp. Endocrinol.</b>	Hareramadas, B
2005	Endocrine and paracrine control of Leydig cell steroidogenesis and proliferation in the wall lizard: an <i>in-vitro</i> study.	<b>Gen. Comp. Endocrinol.</b>	Khan UW
2004	In-vitro effect of FSH and testosterone on Sertoli cell nursing function in wall lizard <i>Hemidactylusflaviviridis</i> (Rüppell).	<b>Gen. Comp. Endocrinol</b>	Khan UW
2004	Dual mode of catecholamine action on splenic macrophage phagocytosis in wall lizard, <i>Hemidactylusflaviviridis</i> .	<b>Gen. Comp. Endocrinol.</b>	Roy B
2004	Inter-relationship among testicular cells in wall lizard <i>Hemidactylusflaviviridis</i> (Rüppell): an ultrastructural seasonal and experimental study	<b>Ind. J. Exp. Biol.</b>	Khan UW
2004	Glucocorticoid-induced thymocyte apoptosis in wall lizard <i>Hemidactylusflaviviridis</i> .	<b>Gen. Comp. Endocrinol.</b>	Hareramadas B, Rembhotka, GW
2004	Significance of regional difference in ion concentrations in lizard, <i>Hemidactylusflaviviridis</i> (Rüppell): assessment of ionic influence on sperm motility in vitro.	<b>Ind. J. Exp. Biol.</b>	Nirmal BK
2002	Dose and time-related in vitro effects of glucocorticoid on phagocytosis and nitrite release by splenic macrophages of wall lizard <i>Hemidactylusflaviviridis</i> .	<b>Comp. Biochem. Physiol.</b>	Mondal S
2002	In vitro effect of sex steroids on cytotoxic activity of splenic macrophages in wall lizards ( <i>Hemidactylusflaviviridis</i> ).	<b>Gen. Comp. Endocrinol.</b>	Mondal S
2002	Thymic structural changes in relation to seasonal cycle and testosterone administration.	<b>Ind. J. Exp. Biol.</b>	Hareramadas B
2001	In vitro effect of temperature on phagocytic and cytotoxic activities of lizard's splenic macrophages.	<b>Comp. Biochem. Physiol.</b>	Mondal S
2000	Epididymal protein secretion and its androgenic	<b>Ind. J. Exp. Biol.</b>	Nirmal BK

	control in wall lizards <i>Hemidactylus flaviviridis</i> (Ruppell).		
<b>1999</b>	Sexual dimorphism in phagocytic activity of wall lizard's splenic macrophages and its control by sex steroids.	<b>Gen. Comp. Endocrinol.</b>	Mondal S
<b>1998</b>	Sex steroids hormones modulate the activation of murine peritoneal macrophages: receptor mediated modulation.	<b>Comp. Biochem. Physiol.</b>	Savita
<b>1997</b>	Epididymal influence on the acquisition of sperm motility in the gekkonid lizard, <i>Hemidactylus flaviviridis</i> .	<b>Arch. Androl.</b>	Nirmal BK
<b>1996</b>	Localization of phospholipid and phosphatases in the epididymal spermatozoa of Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>Mol. Androl.</b>	Kaur S
<b>1995</b>	Effect of cyproterone acetate on FSH and testosterone influenced spermatogenesis, Leydig cells and epididymis in the Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>Europ. J. Morphol.</b>	Haider S
<b>1992</b>	Short term effects of antiandrogens on recrudescence and reproductively active testes of Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>Ind. J. Exp. Biol.</b>	Haider S
<b>1991</b>	Testis and epididymis of the Indian wall lizard ( <i>Hemidactylus flaviviridis</i> ): Effects of flutamide on FSH and testosterone influenced spermatogenesis, Leydig cells and epididymis	<b>J. Morphol.</b>	Haider S
<b>1991</b>	Adrenal and testis relationship in the Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>Ind. J. Exp. Biol.</b>	Haider S
<b>1989</b>	Effect of mammalian pituitary gonadotropins on the sexually quiescent ovary of Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>J. Zool. (London)</b>	Haider S
<b>1987</b>	The epididymis of the Indian wall lizard ( <i>Hemidactylus flaviviridis</i> ) during sexual cycle and in response to mammalian pituitary gonadotropins and testosterone.	<b>J. Morphol.</b>	Haider S
<b>1986</b>	Effect of cyproterone acetate and flutamide on the testis and epididymis of Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>Gen. Comp. Endocrinol.</b>	Haider S
<b>1986</b>	Effects of mammalian pituitary gonadotropins and testosterone on the testis of sexually quiescent Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	<b>J. Zoology (London)</b>	Haider S

1985	Some aspects of adrenal histology and histochemistry in the fresh water turtle, <i>Lissemys punctatagranosa</i> .	ZoolJbAnat	Haider S
1985	Distribution of adrenaline and noradrenaline chromaffin cells in the adrenal gland of a fresh water turtle, <i>Lissemys punctatagranosa</i> .	Current Science	Haider S
1985	Histochemical, histoenzymological and experimental studies of adrenal gland of an Indian wall lizard, <i>Hemidactylus flaviviridis</i> (Ruppell).	Zool. Jb. Anat.	Haider S
1984	Histoenzymology and cytophysiology of adrenal gland in a water snake, <i>Natrix piscator</i> .	Zool. Jb. Anat	Haider S

**Invited Chapters:**

**Published by NISCAIR, CSIR for e-Book on Reproductive Biology**

1. Rai, U. and Roy, B. (2007). "Sex determination and differentiation invertebrates".
2. Rai, U. and Kumar, S. (2007). "Pregnancy".

**Narosa publication**

1. Rai, U. and Khan, U.W. (2008). Endocrine and paracrine control of testicular functions in reptiles.

**Academic press**

1. Rai, U., Kumar, S. and Roy, B. (2010). Hormonal control of testicular functions in reptiles. In "Hormones and Reproduction in Vertebrates, Vol 3, eds., Norris, D.O. and Lopez, K.H., Academic Press (In Press).

**Proceedings in the International Symposium/ Congress.**

1. Nirmal, B. K. and Rai, U. (1999). Studies on the biochemical components of lizard's epididymis: influence of energy substrates on the motility of spermatozoa. **3<sup>rd</sup> Int. Symp. of Asia and Oceania society for Comp. Endocrinol., Republic of Korea, pp.177-183.**
2. Mondal, S. and Rai, U. (1999). Dose-dependent effects of sex steroids on lizard's splenic macrophage phagocytic activity. **3<sup>rd</sup> Int. Symp. of Asia and Oceania society for Comp. Endocrinol., Republic of Korea pp.482-488.**
3. Rai, U. and Mondal, S. (2000). Sexual dimorphism in functional activity of lizard's splenic macrophages. **4<sup>th</sup> Congress of the Asia and Oceania Society for Comparative Endocrinology (AOSCE), Taiwan, pp.360-369.**
4. Khan, U.W. and Rai, U. (2004). Effect of FSH and testosterone on lactate production by Sertoli cells of wall lizard *Hemidactylus flaviviridis*. **5<sup>th</sup> Congress of AOSCE, Nara, Japan, 200-202.14**
5. Hareramadas, B. and Rai, U. (2004). In vitro effect of corticosterone on lizard thymocytes. **5<sup>th</sup> Congress of AOSCE, Nara, Japan, 230-232.**
6. Roy, B. and Rai, U. (2004). Dose-related genomic and non-genomic action of catecholamines on splenic macrophage phagocytosis in wall lizard. **5<sup>th</sup> Congress of AOSCE, Nara, Japan, 233-235.**
7. R. Singh and Rai, U. (2006). In vitro effect of  $\beta$ -endorphin on splenic phagocyte activities in male *Channa punctatus*. **5<sup>th</sup> Inter Congress Symposium of AOSCE, Bangkok, Thailand, 125-128.**

8. Hareramadas, B. and **Rai, U.** (2006). Estrogen-induced thymic atrophy in the wall lizard, *Hemidactylus flaviviridis*. **5th Inter Congress Symposiumf AOSCE, Bangkok, Thailand, 267-275.**
9. **Rai, U.** and Khan, U.W. (2008). Endocrine and paracrine control of Leydig cell activities in reptiles. **International Conference on “Molecular and Clinical aspects of gonadal and non-gonadal actions of gonadotropins” AIIMS, New Delhi, India.**

#### Conferences/Symposia

1. Haider, S. and Rai, U. (1983). XII European Comparative Endocrinology Conference, Sheffield.
2. Rai, U. and Haider, S. (1983). Proc. 70th Indian Science Congress.
3. Rai, U. and Haider, S. (1984). Proc. 71st Indian Science Congress.
4. Rai, U. and Haider, S. (1984). Proc. 71st Indian Science Congress.
5. Rai, U. and Haider, S. (1984). Symposium on Comparative Endocrinology, B.H.U.
6. Rai, U. and Haider, S. (1985). 72nd Indian Science Congress.
7. Rai, U. and Haider, S. (1986). 73rd Indian Science Congress.
8. Rai, U. and Haider, S. (1988). All India Symp. On Comparative Endocrinology, Nagpur University.
9. Rai, U. and Haider, S. (1988). Symposium on Recent trends in comparative endocrinology, B.H.U.
10. Rai, U. and Haider, S. (1989). Symposium on Recent Advances in Endocrinology.
11. Savita and Rai, U. (1996). Symp. on Emerging Frontiers in Hormone Research, B.H.U.
12. Nirmal, B. K. and Rai, U. (1996). Symp. on Emerging Frontiers in Hormone Research, B.H.U.
13. Mondal, S. and Rai, U. (1997). Satellite symposium of the XIII International Congress of Comparative Endocrinology, Nagpur University.
14. Rai, U. (1998). National Symposium on Advances in Endocrine Research and its Relevance to Biotechnology, Utkal University.
15. Nirmal, B. K. and Rai, U. (1998). National Symposium on Trends in Research on Hormones, Reproduction and Animal Productivity, University of Delhi.
16. Mondal, S. and Rai, U. (1998). National Symposium on Trends in Research on Hormones, Reproduction and Animal Productivity, University of Delhi.
17. Nirmal, B. K. and Rai, U. (1998). International Symposium of Asia and Oceania Society for Comparative Endocrinology, South Korea.
18. Mondal, S. and Rai, U. (1998). International Symposium of Asia and Oceania Society for Comparative Endocrinology, South Korea.
19. Hareramadas, B. and Rai, U. (1999). 18th National Symposium on Reprod. Biol. And Comp. Endocrinol, Madras Christian College, Chennai.
20. Rai, U. and Mondal, S. (1999). 18th National Symposium on Reprod. Biol. And Comp. Endocrinol, Dept. of Zoology, Madras Christian College, Chennai.
21. Mondal, S. and Rai, U. (1999). 18th National Symposium on Reprod. Biol. And Comp. Endocrinol, Madras Christian College, Chennai.
22. Rai, U. and Mondal, S. (2000). 4th Congress of the Asia and Oceania Society for Comparative Endocrinology, Taipei, Taiwan.
23. Mondal, S. and Rai, U. (2000). Effect of growth hormone and prolactin on phagocytic activity of wall lizard's splenic macrophages. 4th Congress of the Asia and Oceania Society for Comparative Endocrinology, Taipei, Taiwan.
24. Nirmal, B. K. and Rai, U. (2000). 4th Congress of the Asia and Oceania 16 Society for Comparative Endocrinology, Taipei, Taiwan.
25. Hareramadas, B. and Rai, U. (2000). 4th Congress of the Asia and Oceania Society for Comparative Endocrinology, Taipei, Taiwan.
26. Mondal, S. and Rai, U. (2000). 69th Annual meeting of the society of Biological Chemists, Calcutta.
27. Rai, U. and Mondal, S. (2002). XX National Symposium on Reproductive physiology and Comparative Endocrinology, Bharathidasan University, Tiruchirappalli.



28. Khan, U. W. and Rai, U. (2002). XX National Symposium on Reproductive physiology and Comparative Endocrinology, Bharathidasan University, Tiruchirappalli.
29. Hareramadas, B. and Rai, U. (2002). XX National Symposium on Reproductive Physiology and Comparative Endocrinology, Bharathidasan University, Tiruchirappalli.
30. Rai, U. (2002). National Colloquium on Catfish Physiology, B.H.U., Varanasi.
31. Khan, U. W. and Rai, U. (2002). National Colloquium on Catfish Physiology, B.H.U.
32. Hareramadas, B. and Rai, U. (2002). National Colloquium on Catfish Physiology, Banaras Hindu University, Varanasi.
33. Roy, B. and Rai, U. (2002). National Colloquium on Catfish Physiology, B.H.U.
34. Roy, B., Mondal, S. and Rai, U. (2003). XXI SRBCE, Dept. Zoology, B.H.U., Varanasi.
35. Khan, U. W. and Rai, U. (2003). National symp. on current trends in comp.Endocrinology: Impact of Molecular Biology and Biotechnology, Nagpur University.
36. Roy, B. and Rai, U. (2003). National symposium on current trends in comp. Endocrinology: Impact of Molecular Biology and Biotechnology, Nagpur University.
37. Hareramadas, B. and Rai, U. (2005). National Symposium on Comp. Endocrinol. and Reproductive Physiology: Retrospect and Prospect, University of Delhi.
38. Roy, B. and Rai, U. (2005). 15th International Congress of Comp. 17 Endocrinology, Boston.
39. Khan, U. W. and Rai, U. (2005). 15th Int. Congress of Comp. Endocrinology, Boston.
40. Rai, U. and Hare ramadas, B. (2005). 15th Int. Congress of Comp. Endocrinology, Boston.
41. Singh, R. and Rai, U. (2005). 15th Int. Congress of Comp. Endocrinology, Boston.
42. R. Singh and Rai, U. (2006). 5th Int. congress of AOSCE, Bangkok.
43. Rai, U. (2007). National Symposium on an update of Reproductive Endocrinology: Novel and Applied Strategies, B.H.U. Roy, B. and Rai, U. (2007). National Symposium on an update of Reproductive Endocrinology:Novel and Applied Strategies, B.H.U.
44. Khan, U. W. and Rai, U. (2007). National Symposium on an update of Reproductive Endocrinology: Novel and Applied Strategies, B.H.U.
45. Singh, R. and Rai, U. (2007). National Symposium on an update ofReproductive Endocrinology: Novel and Applied Strategies, B.H.U.
46. Kumar, S. and Rai, U. (2007). National Symposium on an update ofReproductive Endocrinology: Novel and Applied Strategies, B.H.U.
47. Singh, R. and Rai, U. International Structural Neuroscience Conference onPeptide. Nagpur University, Nagpur. Februrary 2-3, 2008
48. Rai, U. and Khan, U.W. (2008). International Conference on Molecular andClinical Aspects of Gonadal and Non-gonadal Actions of Gonadotropins.AIIMS, New Delhi.
49. Singh, R. and Rai, U. (2008). International Conference on Fish Diseases andFish Immunology, Iceland, pp. 30.
50. Rai, U. and Roy, b. (2008). XX National Symposium on Chronobiology,School of Life Sciences, Pt. Ravishankar Shukla University, Raipur, pp. 9.
51. Rai, U. (2009). International Conference on Novel Updates in ReproductiveBiology and Comparative Endocrinology and The 27th annual Meeting ofthe Society for Reproductive Biology and Comparative Endocrinology(SRBCE-XXVII), pp. 19.
52. Rai, U. and Roy, B. (2009). Symposium on Functional Biodiversity andEcophysiology of Animals, Dept. Zoology, BHU, Varanasi; pp. 87.
53. Pandey, M. and Rai, U. (2013). International Conference on Comparative18Endocrinology and Physiology, RTM Nagpur University, Nagpur.
54. Priyam, M., Ghorai, SM. and Rai, U. (2015). Indian Subcontinent RegionDecision Sciences Institute Meet, Murcia, Spain.
55. Basak, R., Roy, A. and Rai, U. (2015). National Symposium on ComparativeEndocrinology and Reproductive Biology, Department of Zoology, Visva-Bharti, Santiniketan, India.
56. Tripathy, M. and Rai, U. (2015). National Symposium on ComparativeEndocrinology and Reproductive Biology, Department of Zoology, Visva-Bharti, Santiniketan, India pp.11

57. Priyam, M., Ghorai, SM. and Rai, U. (2015). National Symposium on Comparative Endocrinology and Reproductive Biology, Department of Zoology, Visva-Bharti, Santiniketan, India pp.9
58. Bakshi, A., Maurya, SK., Basak, R., Roy, A., Pandey, M. and Rai, U. (2015). National Symposium on Comparative Endocrinology and Reproductive Biology, Department of Zoology, Visva-Bharti, Santiniketan, India pp.10
59. Priyam, M., Ghorai, SM. and Rai, U. (2015). International Symposium on Comparative Endocrinology and Integrative Physiology, University of Kerala, Karivattom, Thiruvananthapuram, India pp.22
60. Tripathy, M. and Rai, U. (2015). International Symposium on Comparative Endocrinology and Integrative Physiology, University of Kerala, Karivattom, Thiruvananthapuram, India pp.23
61. Basak, R., Roy, A. and Rai, U. (2016). 8th congress of AOSCE-From comparative to translational research, Korea University, College of Medicine, Seoul, Korea pp. 57
62. Sarkar, H., Rai, U. and Majumdar, SS. (2016). Gordon Research Conference on meiosis, New London, NH, USA pp.28
63. Bakshi, A and Rai, U. (2017). International Conference on Reproductive Biology and Comparative Endocrinology and The 35th Annual Meeting of The Society for Reproductive Biology and Comparative Endocrinology, University of Hyderabad, India pp. 29
64. Kumari, B., Bakshi, A., Dotania, K. and Rai, U. (2017). International Symposium on Recent Advances in Comparative Endocrinology, Madras Christian College, Chennai, India pp. 8
65. Tripathy, M. and Rai, U. (2017). International Symposium on Recent Advances in Comparative Endocrinology, Madras Christian College, Chennai, India.
66. Bakshi, A and Rai, U. (2017). International Symposium on Recent Advances in Comparative Endocrinology, Madras Christian College, Chennai, India.
67. Chuphal, B, Roy, B and Rai, U (2019). International Conference on Comparative Endocrinology and Physiology (ICCEP), RTM Nagpur University, Nagpur, India.
68. Dotania, K, Tripathy, M and Rai, U (2019). International Conference on Comparative Endocrinology and Physiology (ICCEP), RTM Nagpur University, Nagpur, India.

#### **Organised National Symposium/ Conferences/ Workshops:**

- National symposium on “Trends in research on hormones, reproduction and animal productivity” in 1998 sponsored by Ministry of Environment and Forests
- National symposium on “Comparative Endocrinology and Reproductive Physiology: Retrospect and prospect” in 2005 sponsored by Council of Scientific and Industrial Research (CSIR)
- Seminar-cum-workshop on “Comparative Endocrinology and Reproductive Physiology” in 2006
- Workshop on “Techniques for Endocrine Research” in 2012

#### **Chairperson in National / International Conferences:**

- International Conference entitled Humboldt Kolleg on Comparative Endocrinology and Physiology (ICCEP), RTM Nagpur University, Nagpur, India (2019)
- International Symposium on Recent Advances in Comparative Endocrinology, Madras Christian College, Chennai, India (2017)
- International Conference on Role of microbe-plant-animal interaction in human health, INSCR ICC, University of Delhi, Delhi, India (2017)
- International Conference on Reproductive Health with Emphasis on Strategies for Infertility, Assisted Reproduction and Family Planning organized by ICMR, New Delhi (2017)

- National Symposium on Comparative Endocrinology and Reproductive Biology organized by Visva-Bharati, Santiniketan (2015)
- National Symposium on Comparative Endocrinology and Reproductive Physiology, organized by the Institute of Science, Mumbai (2009)
- International Congress on Bioimmunoregulatory Mechanisms Associated with Reproductive Organs: Relevance in Fertility and in Sexually Transmitted Infections (2009), organized by NII, New Delhi
- symposium organized by Dept. Zoology, BHU (2009)
- International Conference organized in AIIMS, New Delhi (2008)
- National Symposium organized in the Dept. of Zoology, B.H.U. (2007)
- Int. Symp. held in Dept. of Animal Sciences, University of Hyderabad (2005)
- 15<sup>th</sup> International Congress of Comparative Endocrinology held in Boston (2005)
- XXI SRBCE meeting held in Dept. of Zoology, B.H.U (2003)
- 4<sup>th</sup> International Congress of the AOSCE, Taipei, Taiwan (2000)
- Satellite Symp. of the XIII ICCE, Dept. of Zoology, Nagpur University (1997)

#### **Invited Lectures:**

- International Conference on Comparative Endocrinology and Physiology (ICCEP), RTM Nagpur University, Nagpur (2019)
- International Conference organized by Department of Animal Sciences, School of Life Sciences, University of Hyderabad, Hyderabad (2009)
- XX National Symposium on Chronobiology, Pt. Ravishankar Shukla University, Raipur (2008)
- International Conference organized in AIIMS, New Delhi (2008)
- 6<sup>th</sup> International Congress of the AOSCE, North Bengal University (2007).
- National Symposium organized in the Dept. of Zoology, B.H.U. (2007).
- National workshop organized by dept. Zoology, AMU, Aligarh (2005)
- Lecture-workshop organized under the auspices of Indian Academy of Sciences (2005)
- National Colloquium in Dept. of Zoology, BHU, Varanasi (2002)
- Fourth International Congress of the AOSCE, Taipei, Taiwan (2000)
- National Symposium in the Dept. Zoology, Utkal University (1998)

#### **Professional Societies Memberships**

- Indian Society for Comparative Endocrinology (ISCE)
- Asia and Oceania Society for Comparative Endocrinology (AOSCE)
- International Federation of Comparative Endocrine Society (IFCES)

#### **Projects ( Minor grant/ Major Grants / Collaborations)**

##### **1. Minor:**

R&D Research Grant, University of Delhi, since 2007 every year

- i. 2012-13: University of Delhi, Expression analysis of Follicle stimulating hormone receptor and Luteinizing hormone receptor in the ovary of wall lizard, *Hemidactylus flaviviridis*
- ii. 2013-2014: University of Delhi, Expression and Signalling of Toll-like receptor 2 in splenocytes of wall lizard, *Hemidactylus flaviviridis*

- iii. 2014-2015: University of Delhi, De novo sequencing of ovarian transcriptome of wall lizard, *Hemidactylus flaviviridis*
- iv. 2015-2016: University of Delhi, Effect of *Aeromonashydrophila* infection on kiss and kiss receptor expression in immune organs of *Channa punctatus*

2. Major Research Projects:

- i. 1994-1998: UGC major research project, Role of epididymis in relation to maturation of spermatozoa in Indian wall lizard *Hemidactylus flaviviridis* Ruppell
- ii. 2000-2004: DST research project, Humoral and cellular control of testicular function in wall lizard, *Hemidactylus flaviviridis*
- iii. 2003-2006: UGC major research project, Neuroendocrine control of phagocytic, cytotoxic and inflammatory activities of splenic macrophages in wall lizard *Hemidactylus flaviviridis* Ruppell
- iv. 2003-2006: ICAR research project, Endocrine control of macrophage activities in live fish *Channa punctatus*
- v. 2007-2009: DST research project, A study of bi-directional communication between Leydig cells and immune cells in the testis of wall lizard, *Hemidactylus flaviviridis*
- vi. 2011-2012: University of Delhi, Pathogen induced Toll-like receptors and proinflammatory cytokines gene expression in spleen of fresh water teleost *Channa punctatus*
- vii. 2011-2013: DU-DST PURSE, Detection, expression and hormonal regulation of testicular genes involved in activation and inactivation of spermatogenesis in freshwater fish *Channa punctatus*
- viii. 2017-2020: DBT research project, Understanding signaling mechanism of inflammation in teleost *Channa punctatus*
- ix. 2017-2019: EMR-SERB, DST research project, Understanding the mechanism of onset of reproductive activity in seasonally breeding reptile *Hemidactylus flaviviridis*: an emphasis on the role of the kisspeptin
- x. 2020-2023: ICMR project, Unravelling possible role of asprosin in male reproduction: hormonal correlation with asprosin and its receptor in mice

(Signature of Faculty Member)

(Signature & Stamp)  
(Head of the Department)