



CURRICULUM VITAE OF DR. BIDHAN C. PATRA

1. Name in full : **Dr. Bidhan Chandra Patra**
2. Qualification : **M. Sc., Ph. D., FZS**
3. Designation : Reader in Zoology & **Coordinator & Chairman**
Aquaculture Management & Technology
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5. Past Experience

Sl. No.	Duration	Institution	Designation	Nature of work
I.	1990-96	Darjeeling Govt. College (WBES)	Lecturer & Asstt. Professor	Teaching & Research
II.	1996-99	Vidyasagar University	Senior Lecturer	Teaching & Research
III.	1999-	Vidyasagar University	Reader (Associate Professor)	

6. Research Interest:

1. Fish Nutrition
2. Fish Feed Toxicology
3. Fish Immunology
4. Aquaculture Probiotics

7. Ph. D. Guidance:

Awarded: 12
Submitted : 03
Pre-Submission: 03

8. Awards / Fellowship:

- 1) I **stood first** in order of merit among the successful candidates of **B.Sc. (Hons.)** Examination of Visva-Bharati University, **1983**.

- 2) I **stood first** in order of merit among the successful candidates of **M. Sc.** Examinations of Visva-Bharati University, **1985**.
- 3) I was honoured as a **member of the `Institute Board'**, Institute of Science, Visva-Bharati University, **1984-85**.
- 4) I was awarded **`Visva-Bharati Merit Scholarship'**, **1983-85**.
- 5) I was awarded **`National Scholarship'** from Ministry of Human Resource Development, Department of Education, Government of India, **1983-85**.
- 6) I was invited by our Honourable Prime Minister, Government of India at a reception, at Hyderabad House, New Delhi, as a **Topper of the Central University** 1983&1985 (**1987**).
- 7) I was awarded **`Jawaharlal Nehru Book Prize'** from the Ministry of Human Resource Development, Department of Education, Government of India, 1983 (**1987**).
- 8) I was awarded **`Best Speaker Inter Lab Medal'** from the Society of Ichthyology', India, **1987**.
- 9) I was awarded **`Young Scientist Award'** from the Asian Fisheries Society Indian Branch, India, **1987**.
- 10) I was awarded **`Best Young Scientist Award'** from the Asian Fisheries Society IB, India, **1987**.
- 11) I was awarded **`Dayamoy Binapani Padak'** from Visva-Bharati University, 1985 (**1990**).
- 12) I was awarded **IFS travel grant** to attend the 3rd Asian Fisheries Forum at Singapore, **1992**.
- 13) I was awarded **INSA & DST travel grant** to attend the 5th Asian Fisheries Forum at Chiangmai, Thailand, **1998**.
- 14) I was awarded as the **'Fellow of the Zoological Society (FZS), Calcutta,'** for my research contribution in the field of Fisheries Science, **2000**.
- 15) I was awarded as the Honorary **'Fellow of the Society of Environmental Sciences (F.S.E.Sc.)'** for my contribution in the field of Environmental Sciences, 2001.
- 16) I was awarded **'Scientist of the year Award 2001'** from National Environmental Science Academy, New Delhi for my contribution in the field of Ichthyology, 2002.
- 17) I was awarded as the honorary **'Fellow of the Inland Fisheries Society of India'** for my outstanding research contribution in the field of Fisheries and Aquatic Biology of India, **2002**.
- 18) I was awarded **'Environmentalists of the year Award 2002'** from National Environmental Science Academy, New Delhi for my contribution in the Fisheries Science, **2003**.
- 19) I was awarded **INSA & DST travel grant** to attend the 7th Asian Fisheries Forum at Penang, Malaysia, **2004**.
- 20) I was honoured to act as **Chair of the Session, Fish Nutrition & Biochemistry during 7th Asian Fisheries Forum at Penang, Malaysia, 2004**.
- 21) I am working as the **'Associate Editor', Journal of Current Science, India since 2004**.
- 22) I am working as a **Reviewer** of the International Journal, **'AQUACULTURE'**, Elsevier, The Netherlands since **2004**.
- 23) I am working as a Reviewer of the International Journal, **"CHEMOSPHERE"** Elsevier, The Netherlands since **2006**.

9. SEMINARS, CONFERENCES, SYMPOSIA, WORKSHOP ETC. ATTENDED

Name of the Seminars/ Conference/ Symposia/ Workshop etc.	Name of the Sponsoring Agency	Place & Date
i) Indian Science Congress	ISCA	New Delhi, 1986
ii) Indian Science Congress	ISCA	Bangalore, 1987
iii) Indian Science Congress	ISCA	Cochi, 1990
iv) Indian Science Congress	ISCA	Indore, 1991
v) DST Workshop	Visva-Bharati	Santiniketan, 1986
vi) National Seminar on Ichthyology	Visva-Bharati	Santiniketan, 1987
vii) First Indian Fisheries Forum	UAS(Bangalore)	Mangalore, 1987
viii) 40 Years of Aquaculture in India	CIFA	Bhubaneswar, 1990
ix) 3rd Asian Fisheries Forum	AFS	Singapore, 1992
x) National Seminar on Participatory Ecodevelopment	VU, Ford Foundation	Midnapore, 1996
xi) Recent Advances in Fish Nutri. Res.	VU	Midnapore, 1997
xii) Finfish and Shell fish Farming	CU, Zoo. Soc.	IICB, 1998
xiii) Recent Trends of Research in Environmental Botany	VU	Midnapore, 1999
xiv) Fifth Indian Fisheries Forum	CIFA	Bhubaneswar, 2000
xv) National Seminar on the Emerging issues of Biological Sciences in the new Millennium	VU	Midnapore, 2000
xvi) IBWS (Workshop)	JU	Jadavpur, 2000
xvii) 1 st Indian Fisheries Science Congress	Punjab University,	Chandigarh, 2000
xviii) 6th Asian Fisheries Forum	National Univ. of Taiwan	Taiwan, 2001
xix) Int. Con. on Women in Fisheries	CIFE, ICAR	Mumbai, 2001
xix) International Symposium on Fish for ICAR Nutritional Security in the 21st century		Mumbai, 2002
xx) Int. Con. on Cell & Molecular Biology	IICB	Kolkata, 2002
xxi) Con. & Man. of Reservoir Fisheries	CIFRI	Barrackpore, 2003
xxii) National Seminar on "Marine Biodiversity as a Source of Food and Medicine"	SDMRI	Tuticorin, 2003
xxiii) 7th Asian Fisheries Forum	Penang	Malaysia, 2004
xxiv) 7 th Indian fisheries Forum	Bangalore	Bangalore, 2005
xxv) Conservation of biodiversity	IBRAD & Women's College	Midnapore, 2005
xxvi) Fish disease diagnosis for sustainable aquaculture	Kerala University	Tiruvantapuram, 2005
xxvii) Solid waste management : prospect and sustainability, XIX Annual Conference, NESAI	Punjab University	Chandigarh, 2006
xxviii) National Seminar on 'Biosensor'	Raja N L Khan W. College	Midnapore, 2007
xxix) Self-Learning Material in Distance Edn.	DEC & VU	Midnapore, 2007
xxx) Rural Development using CSIR tech.	NISTAD & VU	Midnapore, 2007
xxxii) 8th Asian Fisheries Forum (International Con.)	AFS, ICAR & Ors,	Cochi, 2007
xxxii) Ecosystem health and fish for tomorrow	CIFRI (ICAR)	Barrackpore, 14 – 16 Dec. 2007
xxxiii) Sustainability of Indian Aquaculture Industry	IIT (Aquacul. Enginee.)	Kharagpur, 2007

10. LIST OF PUBLICATION (NATIONAL/INTERNATIONAL)

1. Mitra, B., Laha, U.K., Patra, B.C. and Roy, S., 1987. Monthly variation of protein and lipid in the air-breathing fishes (*Clarias batrachus*, Lin. and *Heteropneustes fossilis*, Bloch). *Ind. J. Sys. Eco. Stu.*, 9(11) : 9 – 11.
2. Ray, A., Patra, B.C. and Ray, A.K., 1987. Scanning Electron Microscopical investigation on the Oropharyngeal floor in an air-breathing teleost, *Clarias batrachus* (Linn.) in relation to its feeding adaptations. *Int. J. Acad. Ichtyo.*, 8(2) : 41 – 45.
3. Ray, A.K. and Patra, B.C., 1987. A method for collecting fish faeces for the study of digestibility of feeds. *J. Inland Fish. Soc. Ind.*, 19(1) : 71 – 73.
4. Patra, B.C. and Ray, A.K., 1988. Influence of varying levels of dietary protein on the muscle protein and lipid contents in the air-breathing teleost, *Anabas testudineus* (Bloch). *Ind. Biol.*, 20(1) : 38 – 43.
5. Patra, B.C. and Ray, A.K., 1988. Preliminary study on the utilization of the aquatic weed, *Hydrilla verticellata* (L.F.) Royle as feed by the carp *Labeo rohita* (Hamilton) : Growth and certain biochemical composition of flesh. *Ind. Biol.*, 20(1) : 44 – 50.
6. Patra, B.C. and Ray, A.K., 1988. Performance of the air-breathing fish *Clarias batrachus* (Linn.) at variable dietary protein levels. *Ind. J. Anim. Sci.*, 58(7) : 882 – 886.
7. Patra, B.C. and Ray, A.K., 1988. Influence of the dietary protein source on the protease activity, protein synthesis and certain biochemical composition of the flesh in *Anabas testudineus* (Bloch). In : M. Mohan Joseph (Ed.) *Indian Fisheries Forum*, AFSIB, Mangalore, 1988. 55 – 59.
8. Patra, B.C. and Ray, A.K., 1988. A preliminary study on the influence of the three organic manures on the growth of Indian major carps. *J. Inland Fish. Soc. Ind.*, 20(2) : 61 – 63.
9. Ray, A.K. and Patra, B.C., 1989. Growth response, feed conversion and metabolism of the air-breathing fish, *Anabas testudineus* (Bloch) to different dietary protein sources. In: S.S. De Silva (ed.) , *Fish Nutrition Research in Asia*. AFS Spec. Publ. 4 : 66p.
10. Patra, B.C. and Aditya, A.K., 1989. Induced spawning and embryonic development of a carp *Labeo rohita* (Hamilton). *J. Ecobiol.*, 1(3) : 236 – 240.

11. Patra, B.C. and Mitra, B., 1989. A report on the parasitic disease with special reference to bacterial disease and fungal disease of Indian major carp, case studies in the district of Bankura and Purulia of West Bengal. *Ind. Biol* XXV(I) : 37 – 39.
12. Mitra, B., Laha, U.K., Patra, B.C., Pal, S.C. and Bhattacharya, D.N., 1990. A report on a fish disease and its remedial measure. *Ind. Biol.*, XXI(II) : 33 – 34.
13. Patra, B.C. and Mitra, B., 1991. A report on the parasitic disease of Indian major carps in some regions of West Bengal. *Ind. Biol.*, XXII(II) : 49 – 52.
14. Mukhopadhyay, P.K., Mohanty, S.N., Das, K.M., Sarkar, S. and Patra, B.C., 1991. Growth and changes in carcass composition in young *Labeo rohita* and *Cirrhina mrigala* during feeding and starvation . In: S.S. De Silva (ed.) , *Fish Nutrition Research in Asia*. AFS Spec. Publ. 5 : 87 – 91.
15. Patra, B.C., 1993. Satiation time, appetite and daily pattern of feed intake and faeces release by an air-breathing fish, *Anabas testudineus* (Bloch). *J. Aqua. Tropics*, 8 : 41 – 46.
16. Patra, B.C., 1993. A report on the effect of organic manures and supplementary feeding on the production of Indian major carps in rural areas of West Bengal. *J. Freshwater Biol.*, 5(4) : 347 – 357.
17. Patra, B.C., 1994. Growth performance and metabolism of the air-breathing fish, *Anabas testudineus* (Bloch) at varying dietary protein levels. *The Philippine Journal of Science*, 123(1) : 41 – 50.
18. Patra, B.C., 1995. Influence of different protein level and source on the GOT and GTP level and protein synthesis in an air-breathing fish, *Anabas testudineus* (Bloch). *J. Inland Fish. Soc. Ind.*, 24(2) : 50 – 55.
19. Ray, A., Patra, B.C. and Ray, A.K., 1996. Scanning Electron Microscopy of the Gill-rakers in two fishes of different feeding habits : *Labeo rohita* (Hamilton) and *Channa striatus* (Bloch). *Matsya* (Published).
20. Patra, B.C., Maity, J. Banerjee, S. and Patra, S., 1999. Making Aquatic Weeds Useful III : Nutritive value of *Nehamandra atternifolia* (Roxb. ex Weight) Thw. meal as feed for the Indian major carps. *J. Biol. Sci.*, 5 : 35 – 45.
21. Patra, B.C., Maity, J., & Patra, S. 2000. Feeding strategies of Indian major carp, *Labeo rohita* (Ham.) with special reference to photoperiod, different season, temperature, pH, dissolved oxygen, ration size, feeding frequency and dietary protein level. *Applied Fish. & Aqua.*, 1 (1) : 57 – 60.
22. Patra, B.C., 2001. The role of ecotoxicological research in environmental protection. In : *Ecology and Ethology of Aquatic Biota* (Ed. A. Kumar), Vol. 2. pp. 134-148.

23. Patra, B. C., Maity, J., Debnath, J. and Patra, S., 2001. Making aquatic weed useful : as feed for an Indian major carp *Labeo rohita* (Ham.), 2001. In : *Recent Advances in Animal Science Research* (Vol. II), edited by Ghosal, S. K. and Ray, D. Orion Press International, West Bengal, 293 - 305 pp.
24. Patra, B. C. 2001. Steroid hormones and ecotoxicological implications in the aquatic environment. In : *Ecology of Polluted Water* (Vol. II). Edited by Arvind Kumar, Ashish Publishing Corporation, New Delhi, 723-758 pp.
25. Patra, B. C. 2000(2001). An inventory of the non-conventional fish feed resource and their nutritional evaluation in the district of Midnapore, West Bengal. *J. Biol. Sci. V.U.*, 6 : 41– 46.
26. Bandyopadhyay, P. and Patra, B. C. 2001. Anthropogenic activities: Loss of Biodiversity of Ichthyofauna in India. *J. Biol. Sci. V.U.*, Vol. 7: 38-44.
27. Patra, B. C. and Bandyopadhyay, P. 2001. Probiotics can assure nutritional security in aquaculture : An overview. Presented in the International Symposium on “Fish for Nutritional Security in 21st Century”, 4 – 6 December, 2001, CIFE, Mumbai, India. *Ind. J. Env. Ecoplan.* (2002) : 6 (1).
28. Chand B. K., Patra B. C. and Das S. K. 2001. Effect of stocking density on harvest size of giant fresh water prawn (*Macrobrachium rosenbergii*). *Indian Journal of Animal Health*, 14 (1) : 45 – 50.
29. Patra B. C., Bandyopadhyay, P., Kar A. and Sarkar S. K. 2001. Women in aquaculture in the hilly region of Darjeeling in West Bengal. In. *Women and Fisheries* (International Conference on Women and Fisheries, 11 – 12 December 2001, CIFE, Mumbai, India): pp 89-91.
30. Patra, B.C., Maity, J. and Patra, S., 2001. Feeding strategies of Indian major carp, *Labeo rohita* (Ham.) with special reference to photoperiod, different season, temperature, pH, dissolved oxygen, ration size, feeding frequency and dietary protein level. *Applied Fisheries & Aquaculture*, Vol 1 (1) : 57 – 60.
31. Partha Bandyopadhyay and Bidhan C. Patra. , 2001. Anthropogenic activities: Loss of ichthyofaunal diversity in India. *V.U. J. of Bio. Sci.* 7: 38-44.
32. Patra, B.C., 2001. The role of ecotoxicological research in environmental protection. In : *Ecology and Ethology of Aquatic Biota*, Ed. A. Kumar, Vol. 2: pp. 134-148.
33. Partha Bandyopadhyay, S. K. Swain, B. K. Das and Bidhan C. Patra. 2002. Pathobiology of *Aeromonas hydrophila* infection in Gold fish (*Carassius auratus* Linn). *Aquacult* , Vol. 4(1): 129 - 134.
34. Partha Bandyopadhyay, Arup Tewary and Bidhan C. Patra. , 2002. Role of anthropogenic activity for the declining of catch of hilsa (*Tenualosa ilisha*) in the river Hooghly. *Bulletin on Environmental Science* . Vol. XIX: pp 23 - 29

35. Sanjoy Kumar Banerjee, Bidhan C. Patra, Partha Bandyopadhyay & Arup Tewary. 2002. Changes of the blood parameters in an Indian major carps, *Catla catla* Ham. Due to Myxozoan parasites infection. *Indian J. of Aquatic Biol.*, Vol. 17, No. 1 pp 79 – 84.
36. Partha Bandyopadhyay, Arup Tewary, Biplab Sarkar and Bidhan C. Patra 2002. RAPD amplification is useful for the determination of polymorphism in the population of *Carassius auratus* (Lin). *Indian J. of Aquatic Biol*, 18 (2): 199 – 203
37. Kartik Maiti, Partha Bandyopadhyay and Bidhan C. Patra, 2002. Studies on the seasonal pattern on flora and fauna of two freshwater ponds in Paramanandapur under Moyna Block, East Midnapore, West Bengal. Communicating to *J. of Nature Conservation*. 14 (2): 335 - 341.
38. Patra, B. C., Bandyopadhyay, P., Tewary, A., Kar, A. and Sarkar, S. K. 2002. Participation of rural women in Aquaculture in Himalayan Darjeeling of West Bengal. *Fishing Chimes*. 22 (9) PP. 51-53.
39. Patra, B.C., Maity, J., Patra, S. and Debnath, J. M., 2002. Making aquatic weeds useful II : *Nymphoides cristatum* (Roxb.) O. Kuntze as fish feed for the carp *Labeo rohita* (Hamilton). *Aquaculture Nutrition*, 8 (1) PP. 33-42.
40. Banerjee, S. and Patra, B. C., 2002. Changes of the blood parameters in an Indian major carp, *Catla catla* Ham. due to Myxozoan parasites infection *J. Aqua. Biol.*, 17(1): 79 – 84.
41. Bandyopadhyay, P. and Patra, B. C. 2002. Problems of fish marketing in India. *Hydrosphere*, 4 : 101- 104.
42. Bidhan C. Patra, Partha Bandyopadhyay, Arup Tewary, A. Kar and S. K. Sarkar 2002. Participation of rural women in aquaculture: a new direction towards empowerment and socio-economic upliftment in Himalayan Darjeeling of West Bengal. *Fishing Chimes*, 22(9): 51- 53.
43. Partha Bandyopadhyay, and Bidhan C. Patra, 2003. Diversity of Ornamental fishes in India: prospects and potentialities for foreign exchange. *Journal of Biological Sciences*, 9 : 46 – 53.
44. Maity, J. and Patra, B. C., 2003. Effect of feeding soybean meal on the growth, conversion and physiological changes in *Cirrhinus mrigala* Ham fingerlings. *Applied Fisheries and Aquaculture*, 1 (2) : 19 - 24..
45. Maity, J. and Patra, B. C., 2003. Isolation and characterization of trypsin inhibitor from the water fern, *Azolla pinnata* R. Br. *J. Food. Biochem*. 27 (3) : 281 – 293.
46. Sarkar, B., Bandyopadhyay, P., Dolai, A. K. and Patra, Bidhan C., 2003. Impact of sex pheromones of fish on its reproductive physiology. *Fishing Chimes*, 23(9): 15 -17.
47. Maiti, K., Dolai, A. K., Banerjee , S. K., Mandal, B., Bandyopadhyay, P., Tewary, A., Giri, S. and Patra, Bidhan C. 2003. Comparative study of growth, production and

- survivability of *Catla catla* (Ham.) through Nitrifying and Denitrifying bacterial suspension. *Aquacult.*5(1): 17-28.
48. Bandyopadhyay, P., Sarkar, Biplab, Tewary, A and Patra, Bidhan C., 2003. Use of Random Amplified Polymorphic DNA (RAPD) for detection of some genetic changes in *Labeo rohita* (Ham.) of Midnapore, India. *J.Current Science*, India. 3 (2) : 285 – 288.
49. Bandyopadhyay, Partha, Tewary, Arup and Patra, Bidhan C., 2003. Role of microbes in bioremediation: a review. In. book “*Environmental Contamination & Bioreclamation*” (Eds. A. Kumar), Ashish Publishing House, New Delhi, India
50. Banerjee, S. K., Bandyopadhyay, P., Maiti. K., Patra. Bidhan C., 2003. Effects of Myxozoan (Myxosporea) parasites on the histopathological changes in an Indian major carp (*Catla catla* Ham.). *J. of Nature Conservation* ,Vol. 15 No. 2, 2003).
51. Bandyopadhyay Partha and Patra, Bidhan C. 2004. Live bearing ornamental fish breeding can improve the livelihood of poor rural people in India: a new approach for rural socio-economic development. In : *Perspective of Rural Development Problem & Prospects*. Edited by R. K. Das, A. Basu and A. Guha. The Indian Anthropological Society, 179 – 187pp.
52. Jana S.N., Garg, S.K. and Patra, B.C. 2004. Effect of periphyton on growth performance of grey mullet, *Mugil cephalus* (Linn.) in inland saline groundwater ponds. *Journal of Applied Ichthyology* (Germany), **20**: 110-117.
53. Bhatnagar, Anita, Jana, S.N., Garg, S.K., Patra, B.C., Singh, Gajender and Barman, U.K. 2004. Water quality management in aquaculture. In : Course manual of summer school on *Development of sustainable aquaculture technology in fresh and saline waters*, CCS Haryana Agricultural University, Hisar (India), pp. 203-210.
54. Partha Bandyopadhyay and Bidhan C. Patra., 2004. Probiotics for sustainable aquaculture and its utilization trial. In. Course Manual of the Summer school on *Development of Sustainable Aquaculture Technology For Fresh and Saline Waters*, Department of Zoology, CCS Haryana Agricultural University, pp 61 – 66.
55. Garg, S.K., Jana, S.N., Patra, B.C., Bhatnagar, A., Arasu, A.R.T., Barman, U.K. and Kumar, A. 2005. Development of sustainable aquaculture technology for inland saline ground water : Role of periphyton. In : Seminar on "*Research in Higher Education* "VURSA, Vidyasagar University, Midnapore, W.B., pp.3-9.
56. Jana, S.N., Garg, S.K., Arasu, A.R.T., Bhatnagar, A., Kalla, A. and Patra, B.C. **2006**. Use of additional substrate to enhance growth performance of milk-fish, *Chanos chanos* (Forsskal) in inland saline groundwater ponds. *Journal of Applied Aquaculture*.**18** (1) : 1-20.

57. Jana, S.N., Garg, S.K. and Patra, B.C. **2006.** Effect of inland water salinity on growth performance and nutritional physiology in growing milkfish, *Chanos chanos* (Forsskal) : Field and Laboratory studies. *Journal of Applied Ichthyology* (Germany). **22**:25-35.
58. Chand, B. K., Goswami, A., Biswas, P. K., Biswas, P. and Patra, B. C., **2006.** Effect of stocking levels of ducks on production of Indian major carps in village ponds under duck-fish integrated system in West Bengal state of India. *Livestock Research for Rural Development*, 18 (1) : pp 10.
59. S. Patra, J. Debnath , Partha Bandyopadhyay, J. Maity, A. Tewary, B. K. Chand and B. C. Patra. **2006.** Making aquatic weeds useful VI: *Nechamandra alternifolia* and *Nymphoides cristatum* as fed for the Indian major carp *Labeo rohita* (Hamilton). *India J. of Anim. Health* (Accepted).
60. Jana, S. N., Garg, S. K., Barman, U. K., Arasu, A. R. T. and Patra, B. C.,**2006.** Effect of varying dietary protein levels on growth and production of *Chanos chanos* (Forsskal) in inland saline groundwater : laboratory and field studies. *Aquaculture Internatioal.*, 14 : 479 – 498.
61. Patra, S., Maity, J., and Debnath, J, Patra, B.C., **2007.** Making aquatic weeds useful V : Nutritional evaluation of *Nymphoides cristatum* (Roxb.) O. Kuntz leaf meal as a feed ingredients for *Cirrhinus mrigala* (Hamilton). *J. Biol. Sci.*, vol., 11: 40-54.
62. Tewary, A. and Patra, B. C. 2007. Use of Vitamin C as an immunostimulant on growth, nutritional quality and immune response of *Labeo rohita* (Ham.). *Fish Physiology and Fish Biochemistry*. Springer (Communicated 26.05.07, Rev. 26.06.07).
63. Maity, J. and Patra, B. C., 2007. Effect of replacement of fishmeal by *Azolla* leaf meal on growth, food utilization, pancreatic protease activity and RNA/DNA ratio in the fingerlings of *Labeo rohita* (Ham.). Canadian Journal of Pure and Applied Sciences (**Accepted, Rev. 31.10.2007**)

Books(Chapter written on invitation)

64. Patra, B.C.,2001. The role of ecotoxicological research in environmental protection. In : “*Ecology and Ethology of Aquatic Biota*”, Ed. A. Kumar, Vol. 2: pp. 134-148.
65. Patra, B. C., Maity, J., Debnath, J. and Patra, S., 2001. Making aquatic weed useful : as feed for an Indian major carp *Labeo rohita* (Ham.), 2001. In : “*Recent Advances in Animal Science Research*” (Vol. II), edited by Ghosal, S. K. and Ray, D. Orion Press International, West Bengal, 293 - 305 pp.
66. Patra, B. C. 2001. Steroid hormones and ecotoxicological implications in the aquatic environment. In : Ecology of Polluted Water (Vol. II). Edited by Arvind Kumar, Ashish Publishing Corporation, New Delhi, 723-758 pp.

67. Bidhan C. Patra and Partha Bandyopadhyay, 2002. Probiotics can assure nutritional security in aquaculture: An overview. In. *Ecology and Ethology of Aquatic Biota* Vol. 2 (Ed. A. Kumar) Daya Publishing House, New Delhi, India. pp 220 – 225.
68. Bidhan C. Patra, Partha Bandyopadhyay, 2003. Disease in aquafarming can challenge through probiotics: a new era. In. *Environment and its Challenges*. (Ed. Dr. A. Kumar), Ashish Publishing House, New Delhi, India. Chapter 8 pp 99 – 109.
69. Biplab Sarkar, Partha Bandyopadhyay, S. Adhikari, S. Ayyappan and Bidhan C. Patra, 2004. Pesticide and fish: a workhouse for the detection, evaluation and abatement of water pollution. In. *Assessment & Management of Water Pollution* (Ed. A. Kumar), Ashish Publishing House, New Delhi, India.
70. Partha Bandyopadhyay, Arup Tewary and Bidhan C. Patra, 2004 Role of microbes in bioremediation: a review. In. *“Environmental Contamination & Bioreclamation”* (Eds. A. Kumar), Ashish Publishing House, New Delhi, India.
71. Partha Bandyopadhyay, Arup Tewary, Aditya K. Dolai and Bidhan C. Patra, 2004. The use of probiotic feed supplement in Indian Major carps when challenged with *Aeromonas hydrophila*. In. Book *“Ecobiology & Economic Dimension of Fish”* (Ed. A. Kumar) .
72. Bhatnagar, Anita, Jana, S.N., Garg, S.K., Patra, B.C., Singh, Gajender and Barman, U.K. 2004. Water quality management in aquaculture. In : Course manual of summer school on development of sustainable aquaculture technology in fresh and saline waters, CCS Haryana Agricultural University, Hisar (India), pp. 203-210.
73. Partha Bandyopadhyay and Bidhan C. Patra., 2004. Probiotics for sustainable aquaculture and its utilization trial. In. Course Manual of the Summer school on Development of Sustainable Aquaculture Technology For Fresh and Saline Waters, Department of Zoology, CCS Haryana Agricultural University, pp 61 – 66.
74. Bandyopadhyay Partha and Patra, Bidhan C. 2004. Live bearing ornamental fish breeding can improve the livelihood of poor rural people in India: a new approach for rural socio-economic development. In : Perspective of Rural Development Problem & Prospects. Edited by R. K. Das, A. Basu and A. Guha. The Indian Anthropological Society, 179 – 187pp.
75. Patra, B.C. 2005. Biotechnological manipulation and the future of aquaculture. In *“Biotechnology in Environmental Management”* (Editors : T.K. Ghosh, T. Chakrabarti & G. Tripathi). A.P.H.Publishing Corporation, New Delhi. pp 179-214.
76. Mandal, Basudev and Patra, B.C. 2005. Application of Biotechnological tools for aquaculture practices in the pits (Khadan) of abandoned china clay mines. In *“Biotechnology in Environmental Management”* (Editors : T.K. Ghosh, T. Chakrabarti & G. Tripathi). A.P.H.Publishing Corporation, New Delhi. pp 313-324.
77. Patra, B.C. 2005. Jhora fed fish culture in Darjeeling hills of West Bengal, India for Women empowerment and social upliftment of the region . In *“ Biotechnology in Women Empowerment”*(Editor : S. N. Ninawe). A.P.H.Publishing Corporation, New Delhi.

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