

SARAT CENTENARY COLLEGE, DHANIAKHALI, HOOGHLY, WB TEACHER PROFILE



NAME: SANDIP KUMAR BASAK

DESIGNATION: PRINCIPAL

DEPARTMENT: BOTANY

ACADEMIC QUALIFICATIONS: PH. D.

CONTACT INFO.: (Email,

Mobile)<u>sandipbasak9592@gmail.com/sandipkb@sccollegednk.ac.in/saratcentenary@gma</u> il.com, #9434353556



DATE OF JOINING	01/09/2018
SPECIALIZATION	TAXONOMY OF ANGIOSPERMS
TEACHING INTEREST	PLANT TAXONOMY, PLANT ECOLOGY
TEACHING EXPERIENCE	More than 19 years
	(01/03/2001 to 29/04/2010) - Lecturer/Reader in Botany at Kurseong College,
	Darjeeling (affiliated to the University of North Bengal)
	(30/04/2010 to 31/08/2018) - Associate Professor in Botany at Kandi Raj College,
	Murshidabad (affiliated to the University of Kalyani)
	(01/09/2018 to till dated) - Principal in this college.
AWARD/ FELLOWSHIP	JRF/srf (botanical survey of India, Moe&F, govt. of India, RA
	(ZOOLOGICAL SURVEY OF INDIA, MOE&F, GOVT. OF INDIA)
MEMBERSHIP	NA

RESEARCH INTEREST:

Present research interests:

- Ecological Restoration of the degraded mangrove forests in Indian Sundarbans through a unique biorestoration technology
- Pollination Biology and Reproductive Ecology of mangrove species
- Biological control and invasion mechanisms of invasive plant species

Research areas explored:

- Revisionary studies of the genus *PrimulaL*. (Primulaceae) in the Himalaya of Indian region
- Up to date Floristic assessment of Delhi state with an eye towards recent changes in floral diversity
- Weed taxonomy, biology and ecology
- Ecological restoration of degraded forest landscapes
- Bioprospecting of medicinal plants
- In situ and ex situ conservation of rare and endangered species





RESEARCH EXPERIENCE: Doctoral (1995 – 2000):

Supervisors: **1.Prof. (Dr.) G.G.Maiti, Professor, Department of Botany, University of Kalyani, Kalyani, W.B. 2.Dr.P.K.Hajra, Former Director, Botanical Survey of India, Kolkata** Title of the thesis: **"Study on the genus** *Primula* Linn. (Primulaceae Vent.)" Institute/University: Botanical Survey of India / University of Kalyani

Postdoctoral:

Centre of Excellence, Centre for Environmental Management of Degraded Ecosystems ,CEMDE, University of Delhi (January 2006 – November, 2007):

- Worked as ResearchScientist B (on deputation 2006-2007) at CEMDE and engaged in survey and study for the preparation of an illustrated New Flora of Delhi
- Involved in various ecological restoration of degraded landscapes in different parts of the country (e.g. Corbett Tiger Reserve, Udaipur, Pachmarhi Biosphere Reserve, Bailadila NMDC iron Ore mined-out areas, Chhattisgarh etc.). This work involves extensive field studies for taxonomic and ecological work.
- Resolving the taxonomy of *Lantana* complex

Zoological Survey of India (July 2000 – February 2001):

Worked as a Research Associate under the Project entitled "Status of Biodiversity in west Bengal" in Zoological Survey of India since July, 2000 to February, 2001.

SEMINAR/	PRESENTED PAPER		ATTENDED		CHAIRED SESSION	
WORKSHOP	NATIONAL	INTERNATIONAL	NATIONAL	INTERNATIONAL	NATIONAL	INTERNATIO
PARTICIPATION						NAL
		8				
PUBLICATIONS	JOURNA	L ARTICLES	BOOK/BOOK CHAPTERS			
	TOTAL 12		BOOK 1/BOOKLET 1/BOOK CHAPTER 1			

SELECTED PUBLICATIONS:

a) Research Papers

1.Mst Momtaj Begam, Rajojit Chowdhury, Tapan Sutradhar, Chandan Mukherjee, Kiranmoy Chatterjee, <u>Sandip Kumar Basak</u> & Krishna Ray. Forecasting mangrove ecosystem degradation utilizing quantifiable ecophysiological resilience -A study from Indian Sundarbans. *Scientific Reports* 10, 6683 (2020). <u>https://doi.org/10.1038/s41598-020-63586-4</u>[Impact factor 4.122]

2. RajojitChowdhury, TapanSutradhar ,Mst. MomtajBegam, Chandan Mukherjee, KiranmoyChatterjee, Sandip Kumar Basak, Krishna Ray. Effects of nutrient limitation, salinity increase, and associated stressors on mangrove forest cover, structure, and zonation across Indian Sundarbans. Hydrobiologia, 2019. 842(1),191-217. https://doi.org/10.1007/s10750-019-04036-9. [Impact factor: 2.325]

3. Mst. M Begam, T. Sutradhar, R. Chowdhury, C. Mukherjee, <u>S. K. Basak</u>, K. Ray. Native salt-tolerant grass species for habitat restoration, their acclimation and contribution to improving edaphic conditions: a study from a degraded mangrove in the Indian Sundarbans.Hydrobiologia (2017) 803:373-387. ISSN: 0018-8158 [Impact factor: 2.325]





4. C. Mukherjee , R. Chowdhury , T. Sutradhar, M. Begam, S. M. Ghosh <u>Sandip Kumar Basak</u> , K. Ray. Parboiled rice effluent: A wastewater niche for microalgae and cyanobacteria with growth coupled to comprehensive remediation and phosphorus biofertilization. Algal Research 19 (2016) 225–236. ISSN: 2211-9264. [Impact factor: 4.694]

5. Love A., Naik D., <u>Basak S. K.</u>, Babu S., Pathak N. &Babu C. R. Variability in Foliar Essential Oils among Different Morphotypes of Lantana Species Complexes, and Its Taxonomic and Ecological Significance – Chemistry and Biodiversity, 6: 2263-2274, 2009. ISSN No. : 1612-1872. [Impact Factor 1.926]

6.<u>Basak, S.K.</u>&Maiti, G.G. A new subspecies of PrimulamunroiLindl. from the Eastern Himalaya – P. munroi ssp. schizocalyx – ActaPhytotaxonomicaSinica, China *(Journal of Systematics and Evolution since 2008)*, 39 (5): 473-475, 2001. ISSN No.: 1674-4918. [Impact Factor: 2.050]

7. <u>Basak, S.K</u>.&Maiti, G.G. Primulaarunachalensis sp. nov. (Primulaceae) from the Eastern Himalaya – ActaPhytotaxonomica et Geobotanica, Japan, 51(1): 11-15, 2000. ISSN No. : 1346-7565

Books Published:

Published: 1 (One) full book, 1 (One) Booklet, 1 (One) chapter in a book

1. The Genus PrimulaL. in India (A Taxonomic Revision)

Book for taxonomic research

Authors:

Sandip Kumar Basak, GourgopalMaiti&Prabhat Kumar Hajra (2014)

ISBN No.13: 978-81-211-0491-3

This book is internationally published by <u>Bishen Singh & Mahendra Pal Singh, Dehradun, India</u>, <u>Vedam</u> <u>Books</u> of India and <u>Koeltz Botanical Books</u>, Germany.

(All International Publishers)

2. Glimpses of Nature, 3 Motilal Nehru Place, Lutyens Delhi. An illustrated booklet on the gardens of Chief Minister's official residence

<u>S. K. Basak</u>, A. Love, F. A. Khudsar, M. Faisal, S. Babu, T. K. Roy and B. C. Sabata (First edition, 2007; Second edition 2008). First Edition Published jointly by Delhi Government and CEMDE, University of Delhi, 2007.

Second Edition 2008, 38 pp. Published by Department of Environment, Government of NCT of Delhi, India.

3. <u>Basak, S.K</u>.&Maiti, G.G. Seed morphology of Primula L. sect. PetiolaresPax (Primulaceae) of the Himalayas of Indian region. Perspective of Plant Biodiversity, 317-328. 2002 (Bishen Singh &Mahendra Pal Singh Publisher) ISBN No. 8121102987

TRAINING/WORKSHOP ATTENDED:

- 1. Attended training course on DNA based marker technologies and its application in Plant Biology at Tata Energy Research Institute, New Delhi from 20-30 November, 2001
- Attended Workshop on Biosystematics and conservation of plant diversity at the Centre for Environmental Management of Degraded Ecosystems, University of Delhi, Delhi from 15-24 January, 2003
- **3.** Attended Workshop on Geometric Morphometrics organized by Centre for Environmental Management of Degraded Ecosystems, CEMDE, University of Delhi, 20.3.2012-30.3.2012





Poster Presentations in International and National Conferences organized in India and abroad

1. Poster and lightning talk presentation in 5th International Mangrove Macrobenthos and Management meeting (MMM5) in Singapore, 01-05 July, 2019 entitled "Elimination of reproductive hindrances in mangrove propagation, an emergent criterion for successful mangrove rehabilitation- A study from Indian Sundarbans", Subhajit Saha, Satarupa Nath, Ipsita Das, Tapan Sutradhar, Sandip Kumar Basak and Krishna Ray

2. Poster presentationon "A differential gene expression profile distinguishes mangrove physiology under disturbed ecosystem from that of pristine one in Indian Sundarbans", Tapan Sutradhar, Mst. Momtaj Begam, Chandan Mukherjee, Sandip Kumar Basak, Krishna Ray. 4th International Plant Physiology Congress, December 2-5, 2018, CSIR-NBRI, Lucknow, India

3. Poster presentation in IUCN-SSC Mangrove Specialist Group: Mangrove Symposium 2017, 12-17 September 2017, Leibniz-Centre for Tropical Marine Research (ZMT), Bremen, Germany entitled "Importance of rhizosphere conservation in mangroves of Indian Sundarbans", Sandip Kumar Basak, Rajojit Chowdhury, Chandan Mukherjee, Tapan Sutradhar, Krishna Ray

4. Oral presentation in Mangrove & Macrobenthos Meeting (MMM4), held in July 18-22, 2016, at Flagler College in St. Augustine, Florida, USA entitled "Osmotic adaptation in mangroves and associates-A challenge for degraded mangrove ecosystem", Krishna Ray, Tapan Sutradhar, Momtaj Begam, Sandip Kumar Basak

5. Poster and lightning talk presentation in Mangrove & Macrobenthos Meeting (MMM4), held in July 18-22, 2016, at Flagler College in St. Augustine, Florida, USA

"Mangrove community structure analysis in Western Sundarbans in India-A guide for designing mangrove restoration", Sandip Kumar Basak, Tapan Sutradhar, Momtaj Begam, Krishna Ray

6. Poster presentation in Mangrove & Macrobenthos Meeting (MMM4), held in July 18-22, 2016, at Flagler College in St. Augustine, Florida, USA "In search of soil indicators to evaluate the impact of sea level rise -A study from Sundarban, India", Chandan Mukherjee, Rajojit Chowdhury, Momtaj Begam, Tapan Sutradhar, Sandip Kumar Basak, and Krishna Ray

7.Oral presentation in TURNING THE TIDE ON MANGROVE LOSS "a focus on the state of mangroves in Asia" organized by IUCN Mangrove specialist group held during 12th &13th of November 2015 in Xiamen University, Xiamen, Fujian, P. R. China "Establishing a degraded mangrove biorestoration technology in Indian Sundarban and associated study for the loss of mangrove ecosystem homeostasis",

Krishna Ray, Tapan Sutradhar, Momtaj Begam, Rajojit Chowdhury, Chandan Mukherjee and Sandip Kumar Basak

8. "Loss of adaptive plasticity of mangroves in degraded ecosystem-a study based on osmolyte accumulation", Krishna Ray, Sandip Kumar Basak, Tapan Sutradhar, Chandan Mukherjee, Rajojit Chowdhury, Momtaj Begam 3rd International Plant Physiology Congress, Challenges and Strategies in Plant Biology Research held during December 11-14, 2015, Convention Centre, JNU, New Delhi

11. "Mangroves-A concept of convergent evolution" by Tapan Sutradhar, Mst Momtaj Begam, Sandip Kumar Basak, Krishna Ray. National Symposium on "EVOLVING PLANT BIOLOGY: FROM CHROMOSOMES TO GENOMICS", November 27-29, 2014, organized by West Bengal Academy of Science and Technology (WAST), in collaboration with Bose Institute, University of Calcutta and The Ramakrishna Mission Institute of Culture.

12. Poster presentation entitled "Salt tolerant rice cultivars versus Halophytic grass species - A Biochemical comparison", Tapan Sutradhar, Angana Das, Mst Momtaj Begam, Sandip Kumar Basak, Krishna Ray. International Conference on Molecular Biology and its applications organized by Department of Life Science & Biotechnology, Jadavpur University, February 14-15, 2014.

13. Poster presentation on "Studies on adaptive plasticity of two halophytic grasses-Primary colonizers in mangrove ecosystem", Tapan Sutradhar, Angana Das, Sandip Basak, Krishna Ray. National Seminar on Microand Macro- resources In Biomolecular Technology, February 25-26, 2013. Department of Biotechnology &





Department of Microbiology, North Bengal University.

Significant Lectures Delivered:

- Served as a Resource Person in national workshop on "Vascular Plant Taxonomy: Field Skills, Plant identification& Plant nomenclature" organized by Department of Botany, University of Calcutta on December 5-12, 2018 and delivered an invited lecture on" Methods to evaluate the forest populations and its application in community study of Sundarban mangroves".
- 2. "Himalayan medicinal treasure vulnerable in a fragile ecosystem with conservation in peril -An issue of great concern" on 10.9.2016. UGC –sponsored National Seminar on "Medicinal plant, Health and Environment" Department of Botany, AcharyaPrafulla Chandra College, New Barrackpore, Kolkata.
- 3. "The Genus *Primula*of Indian region -A field guide for identification" on 15.2.2017 Plant Systematics national workshop "Plant systematics: Challenges and Perspectives and Dr. Dan H. Nicolson Memorial Lectures" Department of Botany, University of Calcutta 13.2.2017-23.2.2017.
- 4. Served as a Resource Person at the Workshop on Geometric Morphometrics organized by the Centre for Environmental Management of Degraded Ecosystems, CEMDE, University of Delhi from 20.3.2012-30.3.2012 and delivered a lecture of the above workshop on "Application of Taxonomy and anatomy in plant taxonomy and adaptation studies" on 28.3.2012
- 5. A lecture given on "Establishing a degraded mangrove biorestoration technology in Indian Sundarban and associated study for the loss of mangrove ecosystem homeostasis" on 13.11.2015 in the conference on TURNING THE TIDE ON MANGROVE LOSS "a focus on the state of mangroves in Asia" by IUCN SSC MANGROVE SPECIALIST GROUP, 3rd Annual SYMPOSIUM, November 12-14th, 2015, Xiamen, China&College of the Environment & Ecology, Xiamen University.
- 6. Delivered a short lightning talk and poster presentation on "Mangrove community structure analysis in Western Sundarbans in India-A guide for designing mangrove restoration" on 21.7. 2016 in the Mangrove &Macrobenthos Meeting (MMM4), which was held during July 18-22, 2016, at Flagler College in St. Augustine, Florida, USA.

RESEARCH PROJECT/COLLABORATION/GUIDANCE:

RESEARCH GUIDANCE:

- Empanelled as Ph.D. supervisor in West Bengal State University, Department of Botany and Department of Biochemistry and in St. Xavier's College, Kolkata, Department of Microbiology
- > Two Ph.D. degrees are already awarded under my joint supervision.
 - Thesis title: "Study of eco-physiology and molecular mechanism of salinity stress tolerance in some mangrove associate species from Sundarban Mangrove Ecosystem of West Bengal" Awarded in 2018
 - 2. Thesis title: "Study of the molecular adaptation to salinity stress in mangrove species and loss of mangrove ecosystem homeostasis with an attempt to biorestoration of degraded mudflats in Sundarban Mangrove Ecosystem" Awarded in 2019
- At present two Ph.D. students are already registered under my joint supervision in St. Xavier's College, Kolkata, Department of Microbiology and another Ph.D. student is registered under my joint supervision in Department of Biochemistry, West Bengal State University





Research Projects as PI & Co-PI:

S.No	Title	Agency (Funding, Commissioning and/or Collaborating)	Period	Grant(s)/ Amount mobilized (so far) in Rs. (Lakhs)	Whether Principal Investigator/ Coinvestigator or Consultant/Quality evaluator
1.	Project entitled "Demonstration of established bio-restoration technology for ecological restoration of degraded mangrove ecosystem in Indian Sunderbans through site-specific approach across differential degradation gradients"	Department of Biotechnology (DBT), New Delhi, Govt. of India.	Ongoing 2020-2025 (5 yrs).	Rs. 2.4189420 Crores	Co-investigator
2.	Project entited"Study of reproductive biology of mangrove species in Sundarbans in correlation to its potential for mangrove restoration".EMR/2016/005262 dated 31.07. 2017	SCIENCE & ENGINEERIN G RESEARCH BOARD (SERB), DST, Govt. of India	Ongoing 2017-2020 (3 yrs)	Rs. 39.36790 lakh	Principal investigator
3.	Project entitled "An in-depth study of host-non-mulberry silkworm interaction with special reference to extra floral nectaries (EFN) and volatile organic chemicals (VOC) of host plants and the silkworm's adaptations to the host plant's defense response" BT/PR16610/NER/95/221/2015 dated 13.10.2016	Department of Biotechnology, GOI	Ongoing 2016-2019	Rs. 25.16 lakh	Co-investigator
4.	UGC Minor Project on " A study on pollination biology of some Sundarban mangroves" F. PSW-165/15-16 (ERO) dated 20.1.2017	UGC	Completed 2016-2018 Completion Report already submitted.	Rs. 4.29 lakh	Principal Investigator
5.	Project "Biorestoration of degraded mangrove forest along the embankment of the river Ramganga and relatedmolecular study for the loss of mangrove ecosystem homeostasis" [BT/PR7501/BCE/8/982/2013]dated October, 30 2013	Department of Biotechnology, GOI	Completed Nov., 2013- Nov2018 (5 yrs) Completion Report already submitted.	Rs 68.25600 lakh	Co-investigator
6.	Minor Project ("A taxonomic survey of halophytic grasses of Sunderban areas, West Bengal with an aim for utilization of selected germplasms for developing salt tolerant rice") UGC No.F.PSW-067/11-12 (ERO) dated 08/08/2011	UGC	Completed (Nov. 2011- Nov. 2013) 2 yrs Completion Report already submitted.	Rs. 1,97000/-	Principal Investigator



SARAT CENTENARY COLLEGE, DHANIAKHALI, HOOGHLY, WB TEACHER PROFILE



_							
)			
	7.	UGC Minor Project ("Study and survey of Panaxpseudoginseng Wall. (Araliaceae) for its systematics and genetic variation in some populations of the Eastern Himalaya") UGC (No. F. PSW-008/02 (ERO) dated 29 th Nov. 2002	UGC	Completed (Nov. 2002- Nov. 2004) 2 yrs Completion Report already submitted.	Rs. 36,000/-	Principal Investigator	

ANY OTHER INFORMATION/ADDITIONAL RESPONSIBILITY: