



UNIVERSITY OF CALCUTTA

Department of Botany

FACULTY ACADEMIC PROFILE/ CV



Full name of the faculty member: Dr. Ruma Pal

Designation: Former HoD and Professor in Botany

Specialisation : Phycology

Contact information :

Address: Nabadiganta Housing Co-Operative, Flat –D2,38 R K Chatterjee Road,
Kolkata-700042; Ph: 9433116320

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Research interests:

- Algal Diversity Study (morphological and molecular) and Ecological Modeling
- Algae and Environment - Phycoremediation, CO₂ sequestration,
- Algal Biotechnology – Nanotechnology, Biofuel Production, Aquaculture, Mass cultivation and Technology Transfer at rural level.

Membership in scientific bodies

- Founder member and Hon.Secretary „Probir Chatterjee Research Foundation“
- Life member Botanical Society of Bengal

- Life member Microbiological Society India
- Life member Indian Phyco logical Society
- Life member Asian Fisheries Society

Honors/Awards received:

- Fellow ,West Bengal Academy of Science and Technology (WAST)
- Vice President Indian Botanical Society
- Convener, Ph.D. Committee, Dept. of Botany, CU
- Member, Scientific Advisory Committee, DBT-IIT-PAN, on Bio-energy, GOI (IIT Bombay)
- Member of Technical expert Committee (TEC) on energy bioscience, Govt. of India, Ministry of science and Technology, Department of Biotechnology.
- Member, Scientific Advisory Committee, DBT-TERI, Centre of Excellence Project
- Member, CAS & Major Projects Monitoring Committee, UGC, New Delhi
- Received “Prof. S.C. Dixit Award”, from Indian Botanical Society. New Delhi, 1989.

Organized International and National Seminar and Workshop as Convener - 15

Extramural Research Grants:

1. Biochemical and molecular characterization of Cyanobacteria and Algal resources of West Bengal for development of algal repository with potent biotechnological exploitation (Co-PI). **Department of Science and technology and Biotechnology, Govt. of West Bengal (2019-2022).**
2. Mapping Sundarbans algae for CO₂ sequestration with special emphasis on brackish water wetlands. **DST (Government of India) (All India Net work Program) (2013-2016).**
3. Production of microalgal biomass and their application in aquaculture. **WBSCST (2013- 2016).**

4. Ecological modeling and phytoplankton diversity study of different ecological niches with multivariate analysis and metagenomic approach. **UGC (2012-2015).**
5. Bio-fuel from marine micro-algae. **CSIR-NMITLI- All India Net work Program (2010- 2013).**
6. Technology transfer of *Spirulina* cultivation, bio-mass collection and fish feed preparation among the fisherman of West Bengal (lab to land project). **Dept of Fisheries, West Bengal (2010-11).**
7. Development of low cost replicable and installable pilot model filters for bio-remediation of arsenic and other heavy metals (like lead) etc. From drinking water using cyanobacteria and green algae as bio-reagents. **WB-DST (2008-2011).**
8. Studies on nutritional parameters of local varieties of micro-algae useful in feed formulation and dietetics in fish aquaculture. **UGC-UPE (2007-2011).**
9. Algal exploitation as Aquaculture feed and Technology transfer among villagers. **DST-WBSCST (2007-2010)**
10. Mass cultivation of economically important macro and micro algae used as health food and fish feed and regular training program to rural women as income generating Programme. **DST- New Delhi (2005-2008).**
11. A study on diversity of diatom flora and their role in biogeochemistry of coastal West Bengal with special emphasis on bio-accumulation of heavy metals. **UGC (2005-2008).**
12. Studies on bio-remediation of environmental pollutants by tracer packet and NAA using algae as biomonitor. **Dept. of Atomic Energy, BRNS (2004-2007).**
13. A study on bio-diversity of phytoplanktons and bacteria from brackish water and sewage fed fish ponds and their efficiency as natural feed source. **DST- West Bengal (2002-2005).**
14. Biomonitoring of heavy metals of industrial waste using local Algal flora. **UGC (2000-2002).**

PhD Guidance :

Submitted and awarded- 14

Registered - 6

Patents:

Name of the patent	Year	Status	Patenting country	Patent no
A process for the preparation of natural salt formulations for sea water substitution, mineral fortification. (With CSIR)	2014	Obtained	European patent	12826682.2-1354.2014
Fruit Preservation by bio-mimicry of sacrificial prevention system (with Dept of Biochemistry, University of Calcutta)	2015	Obtained	Indian patent and USA patent filed	925103.2015
Cyanobacteria based filter model and process for obtaining purified water substantially free of arsenic (with Department of science and Technology, Government of West Bengal)	2017	Filed	Indian patent	201731005727

List of Publications:

- 133.** Banerjee, S., Banerjee, I., Dutta, M., and Pal, R, 2021. Fabrication of iron nanoparticles using *Leptolyngbya valderiana* and investigation of its Cr (VI) removal potential in the free and biomass associated forms. *Algal Research*, 58: 102373. **[IF-4.0]**
- 132.** Satpati, G. G., Mal, N., and Pal, R, 2021. Seaweed-Based Interventions for Diabetic Complications: An Analytical Discourse. *Systematic Bioscience and Engineering*, 53-66.
- 131.** Dey, I., Banerjee, S., Bose, R., and Pal, R, 2021. Spatiotemporal variations in the composition of algal mats in wastewater treatment ponds of tannery industry. *Environmental Monitoring and Assessment*, 193(6), 1-22. **[IF-1.9]**
- 130.** Satpati, G. G., Bose, R., and Pal, R, 2021. Taxonomic investigation of euplanktonic diatom communities as indicator of copper in the bank of the subarnarekha river, ghatshila, jharkhand, india: Diatom as copper indicator. *Journal of microbiology, biotechnology and food sciences*, e2827-e2827.
- 129.** Satpati, G. G., and Pal, R, 2021. Co-Cultivation of *Leptolyngbya tenuis* (Cyanobacteria) and

- Chlorella ellipsoidea* (green alga) for biodiesel production, carbon sequestration, and cadmium accumulation. *Current Microbiology*, 78(4), 1466-1481. [IF-1.75]
128. Banerjee, S., Bhattacharya, A., Roychoudhury, P., Dasgupta, A. K., Dutta, M., and Pal, R, 2021. *Arthrospira platensis* (Cyanobacteria)—a potential biofactory for fluoromagnetic nanoiron production. *Phycologia*, 1-11. [IF-2.23]
127. Bose R, Roychoudhury P and Pal R, 2021. In-situ green synthesis of fluorescent silica-silver conjugate nanodendrites using nanoporous frustules of diatoms: an unprecedented approach. *Bioprocess Biosyst Eng*, 44(6):1263-1273. [IF-2.43]
126. Mukherjee, P., Bose, R., and Pal, R, (2020). Abiotic stress-induced changes in nutritive potential of *Halamphora subturgida* (Hustedt) Levkov and utilization of processed biomass in diets for ornamental gold fish (*Carassius auratus*). *Aquaculture Research*. DOI: 10.1111/are.14975. [IF-1.75]
125. Satpati, G. G., and Pal, R, 2020. Effects of nitrogen, phosphorus, EDTA and sodium chloride on biomass and lipid accumulation of *Chaetomorpha aerea*. *Current Botany*, 11: 152-158.
124. Bose R, Saha R, Chattopadhyay S and Pal R. 2020. Utilization of nanoporous biosilica of diatoms as a potential source material for fabrication of nanoelectronic device and their characterization. *Journal of Applied Phycology*. doi.org/10.1007/s10811-020-02134-z. **I.F. 3.016**
123. Banerjee, S., Singh, A., and Pal, R, 2020. A Taxonomic Investigation on Heterocytous Cyanobacteria of West Bengal, India. *Phytomorphology*. 70 (3&4), 53-70.
122. Bose R and Pal R. 2019. New reports of Epilithic and Epiphytic Diatom Flora from foothills areas of Eastern Himalayas. *Phytomorphology*. 69 (3&4), 81-94.
121. Bose R and Pal R. 2019. New reports of Epilithic and Epiphytic Diatom Flora from foothills areas of Eastern Himalayas. *Phytomorphology*. (Accepted manuscript)
120. Satpati GG and Pal R. 2019. SEM study of planktonic chlorophytes from the aquatic habitat of the Indian Sundarbans and their conservation status. *Journal of Threatened Taxa* 11 (13), 14722-14744.

119. Satpati GG and Pal R. 2019. *Trentepohlia keralensis* sp. nov (Trentepohliales, Ulvophyceae, Chlorophyta): A New Corticolous Green Alga from Kerala, India. *Phytomorphology* 69(1&2), 51-56.
118. Mukherjee P, Gorain PC, Paul I and Pal R. 2019. Investigation on the effect of nitrate and salinity stress on the antioxidant properties of green algae with special reference to the use of processed biomass as potent fish feed ingredient. *Aquaculture International*. doi.org/10.1007/s10499-019-00455-6. **IF- 1.455**
117. Gorain P C, Paul I. Bhadoria P S and Pal R. 2019. An integrated approach towards agricultural wastewater remediation with fatty acid production by two cyanobacteria in bubble column photobioreactors. *Algal Research* 42: 101594. **IF- 3.7**
116. Nandi C, Bhowmick S, Gorain P C and Pal R. 2019. New and Rare Records of *Cosmarium* (Desmidiaceae, Zygnematales) from India. *Phytomorphology* 69(1&2), 25-33.
115. Gorain P C, Sengupta S, Satpati G G, Paul I, Tripathi S and Pal R. 2018. Carbon sequestration in macroalgal mats of brackish-water habitats in Indian Sunderbans: Potential as renewable organic resource. *Science of the Total Environment*, 626: 689-702. **IF-4.9**
114. Singha Roy A, Gorain P C, Paul I, Sengupta S, Mondal KP and Pal R. 2018. Phytoplankton nutrient dynamics and Flow Cytometry based population study of eutrophic wetland habitat from Eastern India, a Ramsar site. *RSC Advances*, 8, 9530-9545. **IF-3.1**
113. Mukherjee P and Pal R. 2018. Antioxidative potentials of four green filamentous algae of Indian Sundarbans. *J Algal Biomass Utln.* 9 (4): 1-10.
112. Roychoudhury P, Bose R and Pal R, 2018. Algicidal activity and DNA binding affinity of silver nanoparticle- bio fabricated by green alga, *Rhizoclonium riparium*. *J Algal Biomass Utln.* 9 (1): 67-77.
111. Satpati G G and Pal R. 2018. Microalgae- Biomass to Biodiesel: A Review. *J Algal Biomass Utln.* 9 (4): 11-37.
110. Nandi C, Basu P and Pal R. 2017. New insights into the diversity of planktonic Chlorophytes and Charophytes from West Bengal with reports of three

- novel taxa from India. *Phykos* 47 (2): 135-149.
- 109.** Banerjee S, **Pal R** 2017, Morphotaxonomic study of blue green algae from pristine areas of West Bengal with special reference to SEM studies of different morphotypes and four new reports. *Phytomorphology* 67 (3&4): 67-84.
- 108.** Talukdar P and Pal R. 2017. Predictive toxicity assessment of toxins released from *Microcystis aeruginosa* Kutz.: An silico approach. *WJPR*, 6(14): 411-423.
- 107.** Satpati G G, Gorain P C, Sengupta S and Pal R. 2017. *Cocconeis gracilariensis* sp. nov. (Cocconeidaceae, Bacillariophyta) from India: a new brackish water diatom, epiphytic on invasive red seaweed *Gracilaria* sp. *NeBio*, 8(2): 88-93.
- 106.** Sengupta S, Gorain P C and Pal R. 2017. Aspects and prospects of algal carbon capture and sequestration in ecosystems: a review. *Chemistry and Ecology*, 33(8): 695-707. **IF- 1.463**
- 105.** Bose R, Bar R and Pal R. 2017. Floristic Assortment of Planktonic and Epipsammic Diatoms from Eastern India with new reports. . *J. Algal Biomass Utln*, 8(4): 51-68.
- 104.** Bhattacharya A, Kar P, Biswas P, Roychoudhury P, Basu S, Ghosh S, Panda K, Pal R and Dasgupta A K. 2017. Nitric oxide sensing by chlorophyll a. *Analytica Chimica Acta*. DOI: <https://doi.org/10.1101/146563>. **IF- 4.950**
- 103.** Mridha A, Nandi C, Pal R and Paul S. 2017. Studies on few fresh water green algal species reveals *Spirogyra triplicata* as the repository of high phenolic and flavonoid content exhibiting enhanced anti-oxidant property. *Journal of Pharmacognosy and Phytochemistry*, 6(4): 1291-1297.
- 102.** Satpati G G and Pal R. 2017. Taxonomic diversity and SEM study of Euglenoids from Brackish Water Ecosystems of Indian Sundarbans Biosphere Reserve. *Phykos*, 47 (1): 105-122.
- 101.** Singha Roy A and Pal R. 2016. Fresh water Euglenophytes from East Kolkata Wetlands, a Ramsar site. *Phytomorphology*. 66(3& 4), 113-121.
- 100.** Bose R, Nandi C, Singha Roy A, Gorain PC and Pal R. Floristic survey of microplanktonic Cyanobacteria and chlorophytes from different ecological niches of

West Bengal, India. *Phytomorphology*. 66(3& 4), 77-93.

99. Singha Roy A, Bhowmick D and Pal R. 2016. Phytoplankton community study from eutrophic wetland employing fluorescence activated cell sorting method. *Journal of international academic research for multidisciplinary*, 2016, 4(11): 183-197.
98. Satpati G G, Gorain P C, Paul I and Pal R. 2016. An integrated salinity-driven workflow for rapid lipid enhancement in green microalgae for biodiesel application. *RSC Advances*, 6:112340-112355. **IF-3.1**
97. Parial D, Gopal PK, Paul S, Pal R. 2016. Gold (III) bioreduction by cyanobacteria with special reference to in vitro biosafety assay of gold nanoparticles. *J Appl Phycol.*, 28 (6): 3395–3406.
96. Roychoudhury P., Bhattacharya A, Dasgupta A and Pal R. (2016), Biogenic synthesis of gold nanoparticle using fractionated cellular components from eukaryotic algae and cyanobacteria. *Phycological Research*. 64: 133–140
95. Roychoudhury P, Gopal PK, Paul S, Pal R. 2016. Cyanobacteria assisted biosynthesis of Silver nanoparticle- A potential anti-leukemic agent. *J Appl Phycol.*, 28 (6) : 3387–3394 **IF-2.5**
94. Gorain P.C. and Pal R. 2016. Carbon sequestration in batch cultures of three *Phormidium* species isolated from Sunderbans brackishwater habitats. *J. Algal Biomass Utln.* 2016 7 (4): 24-27 eISSN: 2229 – 6905
93. Satpati G G and Pal R. 2016. New record of a subaerial green alga *Trentepohlia rigidula* (J. Müller) Hariot from West Bengal, India. *J. Algal Biomass Utln.* 2016, 7 (4): 18-23 eISSN: 2229 – 6905
92. Roychoudhury P, Nandi C, Pal R. 2016. Diatom-based biosynthesis of gold-silica nanocomposite and their DNA binding affinity. *J Appl Phycol.*, 28 (5) : 2857–2863 **IF-2.5**
91. Sengupta S and Ruma Pal. 2016. Role of Dominant Green and Red algae of Indian Sundarbans in Nutrient remediation process employing synthetic saline wastewater. *J. Algal Biomass Utln.* 7 (2): 153- 158
90. Gour Gopal Satpati and Ruma Pal. 2016. New and rare records of filamentous green algae from Indian Sundarbans Biosphere Reserve. *J. Algal Biomass Utln.* 7 (2): 159- 175

- 89.** Maurya, R., Paliwal, C., Chokshi, K., Pancha, I., Ghosh, T., Satpati, G.G., **Pal, R.**, Ghosh, A., Mishra, S. 2016. Hydrolysate of lipid extracted microalgal bio mass residue: An algal growth promoter and enhancer, *Bioresource Technology*. 207, 197–204. **IF-4.4**
- 88.** Satpati G.G, Gorain P.C. and Pal R. 2016. Efficacy of EDTA and Phosphorous on biomass yield and total lipid accumulation in two Green Microalgae with special emphasis on Neutral lipid detection by flow-cytometry. *Adv. Biol.* 1-12.
- 87.** Chakraborty T., Swarbhanu S., Sen A.K. and Pal R. 2015. Extracellular polysaccharide of cyanobacterium- *Leptolyngbya tenuis*: Structural characterization and its compositional changes during stress exposure. *Int. J.Adv. Res.* 3 (11): 15-39.
- 86.** Satpati G.G., Mallik KS and Pal R. 2015. An alternative High-throughput staining method for determination of Neutral lipids in Green Microalgae for Biodiesel Application. *Biotechnol. Bioprocess Eng.*, 20, 1044-1055. IF-1.11
- 85.** Satpati GG, Kanjilal S, Prasad RBN and Pal R. 2015. Rapid accumulation of total lipid in *Rhizoclonium africanum* Kutzing as Biodiesel feedstock under nutrient limitations and the associated changes at cellular level. *Int. J. Microbiol.* 1-13.
- 84.** Mukherjee P, Nandi C, Khatoon N and Pal R. 2015. Mixed algal diet for skin colour enhancement of ornamental fishes. *J. Algal Biomass Utiln.* 6(4):35-46.
- 82.** Singha Roy A and Pal R. 2015. An investigation on Morphotaxonomy and Diversity of Planktonic Chlorophytes from fresh water Eutrophic Wetland of Indian Ramsar Site. *Phykos*, 45 (2): 29-42.
- 81.** Singha Roy A and Pal R. 2015. Planktonic Cyanoprokaryota and Bacillariophyta of East Kolkata Wetlands Ecosystem, a Ramsar Site of India with reference to diversity and taxonomic study. *J. Algal Biomass Utiln.* 6(3): 47-59.
- 80.** Satpati G G and Pal R. 2015. *Trentepohlia sundarbanensis* sp. nov. (Trentepohliaceae, Ulvophyceae, Chlorophyta), a new chlorophyte species from Indian Sundarbans. *Phykos*, 45 (1): 1-4.
- 79.** Chakraborty T, Sen AK and Pal R. 2015. Stress induced enhancement in exo-polysaccharide production in *Spirulina subsalsa* and its chemical characterization. *J. Algal Biomass Utiln.* 6 (3): 24- 38.
- 78.** Barman N, Satpati GG, Pal R. 2015. A Morphotaxonomic account of cyanobacterial diversity of Indian Sundarbans. *J Algal Biomass Utiln.* 6 (3): 39- 46.

77. Roychoudhury P, Ghosh S, Pal R. 2015. Cyanobacteria mediated green synthesis of gold-silver nano alloy. *J. Plant Biochem. Biotechnol. (Springer)*. 25(1): 73-78. **IF-1.094**
76. Parial D and Pal R. 2015. Biosynthesis of monodisperse gold nanoparticles by green alga *Rhizoclonium* and associated biochemical changes. *J of Appl Phycol. (Springer)*. 27(2): 975-984. **IF-2.32**
75. Sen Roy S and Pal R. 2015. Microalgae in Aquaculture: A Review with Special Reference to Nutritional Value and Fish Dietetics. *Proc Zool Soc (Springer)*. 68(1): 1-8.
74. Chatterjee D, Bhattacharjee P, Satpati GG and Pal R. 2014. Spray Dried Extract of *Phormidium valderianum* as a Promising Source of Natural Antioxidant. *Int. J. Food Sc.*, 1-8.
73. Chakraborty T and Pal R. 2014. An overview of cyanobacterial polysaccharides: Features, Composition and Effects of stress exposure. *International Journal of Life Science (IJLS)* 8 (4): 1-9
72. Satpati GG and Pal R. 2014. Rapid detection of neutral lipid in green microalgae by flow cytometry in combination with Nile red staining-an improved technique. *Ann Microbiol (Springer)*. 65(2): 937-949. **IF-1.5**
71. Satpati GG, Pal R. 2014. Effects of nitrate, phosphate and salinity stress on cell division,
70. Parial D and Pal R. 2014. Green synthesis of gold nanoparticles. *Ind J of Appl Res*. 4 (1): 69-72. **IF -2.1652**
69. Roychoudhury P and Pal R, 2014. Synthesis and characterization of nanosilver- a blue green approach. *Ind J of Appl Res*. 4 (1): 54-56. **IF -2.1652**
68. Roychoudhury P and Pal R, 2014. *Spirogyra submaxima*- a Green Alga for Nanogold Production. *J Algal Biomass Utln*. 5 (1): 15-19.
67. Satpati GG, Barman N, Pal R. 2013. A study on green algal flora of Indian Sundarbans mangrove forest with special reference to morphotaxonomy. *J Algal Biomass Utln*. 4(1): 26-41.
66. Karemore A, Pal R, Sen R. 2013. Strategic enhancement of algal biomass and lipid in *Chlorococcum infusioinum* as bioenergy feedstock. *Algal Research (Elsevier)*. 2:113-121.
65. Mukherjee P, Banerjee I, Khatoon N, Pal R. 2013. Cyanobacteria as Elicitor of Pigment in Ornamental Fish *Hemigrammus caudovittatus* (Buenos Aires Tetra). *J Algal Biomass Utln*. 4

- (3): 59–65.
64. Chakraborty T, Sen A.K, Pal R. 2012 Chemical characterization and the stress induced changes of the extracellular polysaccharide of the marine cyanobacterium, *Phormidium tenue*. *J Algal Biomass Utln.* 3(1):11–20.
63. Barman N, Satpati GG, Sen Roy S, Khatoon N, Sen R, Kanjilal S, Prasad RBN, Pal R. 2012. Mapping Algae of Sundarban Origin as Lipid Feedstock for Potential Biodiesel Application. *J Algal Biomass Utln.* 3(2):42– 49.
62. Paul S, Pal R, Kundu R. 2012. Antiproliferative activity of *Phormidium valderianum* and *Phormidium tenue* (cyanobacteria) on human cervical cancer cells (Hela) in vitro. *J Algal Biomass Utln.* 3 (4): 30– 37.
61. Bhattacharya P and Pal R. 2012. Scope of phycoremediation of Arsenic using *Phormidium tenue* with special reference to modulation in cellular biochemistry. *J Algal Biomass Utln.* 3 (2): 1– 8.
60. Satpati GG, Barman N, Pal R. 2012. Morphotaxonomic account of some common sea weeds from Indian Sundarbans mangrove forest and inner island area. *J Algal Biomass Utln.* 3 (4): 45– 51.
59. Satpati GG, Das M, Pal R. 2012. Morphotaxonomic account of fresh water blue green and green algae of West Bengal, India. *J of Bot Soc of Bengal.* 66 (1): 9-20.
58. Choudhury AK and Pal R. 2012. Phytoplankton studies along coastal ecosystems – a review. *J of Bot Soc of Bengal.* 66 (1):1-8.
57. Choudhury AK and Pal R. 2012. Understanding the seasonal dynamics of primary productivity in relation to phytoplankton populations from the Bhagirathi – Hooghly estuary, eastern Indian coast. *J Algal Biomass Utln.* 3 (4): 80–88.
56. Mukherjee S, Parial D, Khatoon N, Chaudhuri A, Senroy S, Homechaudhuri S, Pal R. 2011. Effect of Formulated Algal Diet on growth performance of *Labeo rohita* Hamilton. *J Algal Biomass Utln.* 2(4):1–9.
55. Satpati GG and Pal R. 2011. Biochemical composition and lipid characterization of marine green alga *Ulva rigida*- a nutritional approach. *J. Algal Biomass Utln.* 2(4):10–13.
54. Chakraborty N, Banerjee A, Pal R. 2011. Bio-monitoring of lead, cadmium and chromium in environmental water from Kolkata, North and South 24-Parganas using algae as bioreagent. *J Algal Biomass Utln.* 2(3): 27-41.

53. Bhattacharya P and Pal R. 2011. Response of Cyanobacteria to Arsenic toxicity. *J of Appl Phycology (Springer)*. 23:293-299. **IF -2.326**
52. Chakraborty N, Banerjee A and Pal R. 2011. Accumulation of Lead by free and immobilized Cyanobacteria with special reference to accumulation factor and recovery. *Bioresource Technology (Elsevier)*. 102: 4191-4195. **IF -4.750**
51. Parial D, Patra H, Dasgupta Kr. A, and Pal R. 2011. Screening of different algae for green synthesis of gold nanoparticle. *Eur J Phycol*. 47(1): 22-29. **IF -1.912**
50. Bhattacharya P, Choudhury AK, Pal R. 2011. Fresh water Diatoms from Eastern India with special reference to their Taxonomic Accounts. *Ind Hydrobiol*. 13(2): 98-112.
49. Satpati GG, Barman N, Chakraborty T, Pal R. 2011. Unusual habitat of algae. *J Algal Biomass Utiln*. 2 (4): 50 -55.
48. Satpati GG and Pal R. 2011. Microalgal Diversity from three subdivisions of Paschim Medinipur district, West Bengal, INDIA. *J of Bot Soc of Bengal*. 65 (2): 151-163.
47. Khatoon N, Sengupta P, Homchoudhury, S and Pal R. 2010. Evaluation of algae based feed in Gold Fish. *Proc of Zool Soc. (Springer)*. 63(2):109-114.
46. Khatoon N, Choudhury A, Sen Roy S, Kundu N, Mukherjee S, Majumdar D, Homchoudhury S and Pal R. 2010. Algae as feed supplement in fish nutrition. *J of Bot Soc of Bengal*. 64(2):85-93.
45. Sen Roy S, Sengupta P, Pal R. 2010. Algae-metal interaction: accumulation, growth pattern and morphology, *J of Bot Soc of Bengal*. 64(1):29-37.
44. Parial D, Patra HK, Roychoudhury P, Dasgupta AK, Pal R. 2010. Gold nanorod production **2.326**
43. Chakraborty T, Mukhopadhyay A, Pal R. 2010. Micro algal diversity of Kolkata, West Bengal, India. *Ind Hydrobiol*. 12(2):204-224.
42. Choudhury AK and Pal R. 2010. Phytoplankton and nutrient dynamics of shallow coastal stations at Bay of Bengal, Eastern Indian Coast. *Aquatic Ecology (Kluwer Acad. Publ.)*. 44:55-71. **IF -1.378**
41. Choudhury AK and Pal R. 2010. Variations in seasonal phytoplankton assemblages as a response to Environmental Changes in the surface waters of a hypo saline coastal station along the Bhagirathi Hooghly estuary. *Env Monitoring and assessment (Springer)*. 44:55-71. **IF -1.592**
40. Khatoon N, Chattopadhyay P, Mukhopadhyay A, Mukhopadhyay M, Pal R. 2009. Algal Diet

- in Prawn Aquaculture. *Fishing Chymes*. 28 (10/11):44-47.
39. SenRoy S, Barman N, Pal R. 2009. Stress induced changes in total lipid and fatty acid composition of *Navicula minima* Grun. *J of Bot Soc of Bengal*. 63(1):47-51.
 38. Chakraborty N, Banerjee A, Lahiri S, Panda A, Ghosh A, Pal R. 2009. Biorecovery of gold using cyanobacteria and an eukaryotic alga with special reference to nanogold formation—a novel phenomenon. *J Appl Phycology*(Springer). 21:145-152. **IF -2.326**
 37. Chaudhry AK and Pal R. 2008. Diversity of planktonic diatoms from West Bengal coast with special reference to taxonomic Accounts. *Phytomorphology*. 58 (1&2):29-41.
 36. Chakraborty N, Nayak D, Ramaswamy A, Lahiri S, Pal R. 2007. Application of Neutron Activation Analysis and Tracer packet Techniques in phyco-remediation process. *Seaweed Res Utiln*. 29 (1&2): 249-254.
 35. Chakraborty N, Talukdar P, Mukherjee M, Pal R. 2006. Phytoplanktons as natural feed source and waste water stabilizing agent in sewage-fed fish pond – case study. *Pollution Research*. 25 (3):633-639.
 34. Nayak D, Nag M, Banerjee S, Pal R, Laskar S, Lahiri S. 2006. Preconcentration of ¹⁹⁸ Au in a green alga, *Rhizoclonium*. *J of Radioanalytical & Nuclear Chemistry (Kluwer Academic Publ)*. 268: 337- 340. **I.F-1.467**
 33. Chakraborty N, Pal R, Ramaswami A, Nayak D, Lahiri S. 2006. Diatom: A potential bio-accumulator of Gold. *J of Radioanalytical & Nuclear chemistry (Kluwer Academic Publ)*. 270:645-649. **I.F-1.467**
 32. Banerjee S, ChakrabortyN, Nayak D, Nag M, Ramaswami A, Lahiri S, Pal R. 2005. Studies on bio-accumulation of ¹⁵³ Sm and ¹⁵² Eu by some marine algae. *Seaweed Res Utiln*. 27(1 & 2): 8.
 31. Chakraborty N, Pal A, Talukdar P, Pal R, Chattopadhyay P, Mukherjee M. 2005. Studies on Environmental parameters in relation to algal bloom formation in different ecological condition. *Ind Hydrobiol*. 8 (1): 75 –78.
 30. R Pal. 2005. Role of *Spirulina platensis* in waste water recycling process and production of useful biomass –a case study. *Glimpses of Indian Phycology*. 215-222.
 29. Mukhopadhyaya A, Banerjee S, Pal R. 2004. Lead and Chromium Bio-availability to Pro- and eukaryotic algal cell system and their cytotoxicity. *Perspectives in Cytology and genetics*. 11:265-271.
 28. Mukhopadhyay A and Pal R. 2004. *Dichotomosiphon erecta* -A new species from brackish

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➤ **Books/ Book Chapters**

Published: Books

- **Ruma Pal** and Avik kumar chaudhuri. 2014. “An Introduction to Phytoplanktons: Diversity and Ecology” published by Springer.
- Sudeshna Sen Roy, Maitreyi Banerjee and **Ruma Pal**. 2010. “Microalgae in Aquaculture Practices”, Published by West Bengal State Council of Science and Technology.
- **Ruma Pal**, Maitreyi Banerjee and Sudeshna Sen Roy. 2009. “Baigyanik upaye macher khadye shaolar byabohar” (in Bengali), Published by West Bengal State Council of Science and Technology.

Book Chapters

- Gour Gopal Satpati and Ruma Pal, **Photosynthesis in Algae in**, „Applied Algal Biotechnology”, NOVA Science Publisher, USA.(in press)
- Sarban Sengupta and **Ruma Pal**. 2019. Macro and Microalgal impact on marine ecosystem of global perspective. Handbook of Algal technologies and Phytochemicals. (CRC press), vol. 2, chapter 23, 269-276.
- Panchali Bhattacharya, Nabanita Chakraborty, **Ruma Pal**. 2015. Bioremediation of Toxic metals using algae in Algal Biorefinery: An integrated Approach (Springer). 439-462.
- Nilofer Khatoon and **Ruma Pal**.2015. Microalgae in Biotechnological Application: A Commercial Approach in Plant biology and biotechnology. (Springer) 2: 27-49.

Foreign visits:

1. Invited Lecture delivered in International conference on “Advances in Civil and Ecological Engineering Research” in Taiwan on July, 2019.
2. Invited Lecture delivered in International symposium “3rd Global congress on plant biology and biotechnology” in Singapore on March, 2019.
3. Invited Lecture delivered in 9th Asia-Pacific Conference on Algal Biotechnology: Algae for food, feed, Fuel and Beyond on November, 2016, Bangkok, Thailand.
4. Invited Lecture delivered In Algal biorefinery: A potential source of food, feed, biochemicals, biofuels and biofertilizers”, Technical University of Denmark, Lyngby, Denmark on August, 2014.
5. Lecture delivered in 10th International Phycological Congress, Orlando, Florida, USA on August, 2013.
6. Lecture delivered at 9th Asian Fisheries and Aquaculture Forum, Shanghai Ocean University, Shanghai, China on April, 2011.
7. Lecture delivered in the 15th World Congress Clinical Nutrition organized by National Research Centre, Ein Sokhna, Egypt on September, 2010.
8. Lecture delivered in 9th International Phycological Congress, Tokyo, Japan organized by International Phycological Society in association with Japanese Society of Phycology on August, 2009.
9. Attended annual conference of American Phycological society at Williamsburg, Virginia on August, 2004 and delivered Lecture.