

1. Name of the department : DEPARTMENT OF BOTANY
2. Year of Establishment : 2002
3. Names of Programmes / Courses offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., etc.):
  - (i) B.Sc. (General)-Since 2002
  - (ii) B.Sc. (Honours) - Since 2012-2013 ;
  - (iii) M.Sc. (Distance Learning)- From 2015
4. Names of Interdisciplinary courses and the departments/units involved : Nil
5. Annual/ semester/choice based credit system (programme wise): Annual
6. Participation of the department in the courses offered by other departments: Some classes of the Biochemistry and Geography departments are taken by our faculty members, when invited.
7. Courses in collaboration with other universities, industries, foreign institutions, etc. : Nil
8. Details of courses/programmes discontinued (if any) with reasons: Nil
9. Number of Teaching posts:

	<b>Sanctioned</b>	<b>Filled</b>
Professors	Nil	Nil
Associate Professors	Nil	Nil
Asst. Professors	1	1

10. Faculty profile with name, qualification, designation, specialization,  
(D.Sc./D.Litt. /Ph.D. / M. Phil. etc.,)

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. Students guided for the last 4 years
Dr. Sanchaita Lala	Ph.D.	Assistant Professor	Cell Biology & Genetics ; Nanomedicine	8	1 (jointly)
Dr. Mithu Biswas (Das)	Ph.D.	Contractual Full-time Lecturer	Plant Taxonomy; Plant Biotechnology	2	Nil
Subhamoy Chatterjee	M.Sc.	Govt. Approved Part-time Lecturer	Cell Biology, Molecular Genetics and Plant Biotechnology	8	Nil

11. List of senior visiting faculty: Nil

12. Percentage of lectures delivered and practical classes handled (programme wise) by temporary faculty:

Course	Lectures	Practical Classes
B.Sc. (Honours)	76.92%	81.81%
B.Sc. (General)	93.33%	42.85%

13. Student -Teacher Ratio (programme wise):

B.Sc. (Hons.): 5: 1

B.Sc. (General) : 15:1

14. Number of academic support staff (technical) and administrative staff sanctioned and filled : Sanctioned : Nil Filled - 1 (temporary)

15. Qualifications of teaching faculty with D.Sc./ D.Litt/ Ph.D/ MPhil / PG.:

Ph.D.: 2 PG : 1

16. Number of faculty with ongoing projects from a) National b) International funding agencies and grants received: Nil

17. Departmental projects funded by DST - FIST; UGC, DBT, ICSSR, etc. and total grants received :

DBT 1 (joint) ` 38.91 lakhs

18. Research Centre /facility recognized by the University: No

19. Publications:

\* Publication per faculty:

a) Dr. Sanchaita Lala : 10

b) Dr. Mithu Biswas (Das) : 7

\* Number of papers published in peer reviewed journals (national /international) by faculty and students

Faculty:

a) Dr. Sanchaita Lala : 10

b) Dr. Mithu Biswas (Das) : 7

c) Students : Nil

\* Number of publications listed in International Database (For Eg: Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.):

Dr. Sanchaita Lala: 9 (NCBI-Pubmed)

Dr. Mithu Biswas (Das) : 5 (NCBI-Pubmed)

\* Chapter in Books

**a) Dr. Sanchaita Lala: 1**

i) Basu M.K. and **Lala S.** (2006) Nanoparticulate Drug Delivery to the Reticulo-endothelial System and to Associated Disorders.(Chapter 21) In: Nanoparticulates as Drug Carriers. Ed. Torchilin V.P. Imperial College Press, London pp. 463-480. (ISBN 1-86094-630-5).(\***Citations 3**)

**b) Dr. Mithu Biswas (Das): 2**

i) Singh A, **Das M**, Bal S and Banerjee R. (2014) Rice Processing (Chapter 4) In: Engineering Aspects of Cereal and Cereal- Based Products Ed. Raquel de Pinho Ferreira Guine' Paula Maria dos Reis Correia; CRC Press, Taylor & Francis. (ISBN 13: 978-1-4398-8702-8) (\***Citation 1**)

ii) Bhanja T, **Das M**, Banerjee R.(2008) Downstream Processing of Biologicals: A Strategic Approach.(Chapter 9) In: Advances in Fermentation Technology Ed. A.

Pandey, C. Larroche, C. R. Soccol and C. Dussap; Asiatech Publishers Inc., . (ISBN 13: 978-8-1876-8018-5)

## **Publications in National and International Journals :**

### **a) Dr. Sanchaita Lala :**

- i) Maity A., Hazra A., Palit P., Mondal S., **Lala S.**, Mondal N.B.(2013) The cytotoxic effects of diketopiperazines against *Leishmania donovani* promastigotes and amastigotes. *Medicinal Chemistry Research* 22(7): 3452-3458.(**\*Citations 3 \*SNIP 0.800 \*SJR 0.355 \*IF 1.612**)
- ii) Bhowal S.K, **Lala S.**, Hazra A, Paira P., Banerjee S., Mondal N.B., Chakraborty S.(2008) Synthesis and assessment of fertility-regulating potential of 2-(2'-chloroacetamidobenzyl)-3-(3'-indolyl) quinoline in adult rats as a male contraceptive agent. *Contraception*. 77(3): 214-222. (**\*Citations 10 \* SNIP 1.096 \*SJR 1.333 \*IF 2.327**)
- iii) **Lala S.**, Gupta S., Sahu N.P., Mandal D., Mondal N.B., Moulik S.P., Basu M.K.(2006) Critical evaluation of the therapeutic potential of basic acid entrapped in oil-in-water microemulsions and poly-lactide nanoparticles against experimental leishmaniasis. *Journal of Drug Targeting* 14(4):171-179. (**\*Citations 20 \*SNIP 0.671 \*SJR 0.715 \* IF 1.699**)
- iv) Gupta S., **Lala S.**, Sanyal S.K., Dutta S., Basu M.K., Moulik S.P.(2005) Designing and testing of an effective oil-in-water microemulsion drug delivery system for *in vivo* application. *Drug Delivery*. 12(5): 267-273. (**\*Citations 29 \*SNIP 0.534 \*SJR 0.385 \*IF 1.067**)
- v) Tyagi R., **Lala S.**, Verma A.K., Nandy A.K., Mahato S.B., Maitra A.N., Basu M.K.(2005) Targeted delivery of arjunglucoside I using surface hydrophilic and hydrophobic nanocarriers to combat experimental leishmaniasis. *Journal of Drug Targeting*. 13(3): 161-171. (**\*Citations 48 \*SNIP 0.615 \*SJR 0.706 \*IF 1.569**)
- vi) Basu M.K. and **Lala S.** (2004) Macrophage specific drug delivery in experimental leishmaniasis. (Review) *Current Molecular Medicine*. 4(6):681-689.(**\*Citations 51 \*SNIP 1.095 \*SJR 1.779 \*I.F. 4.94**)
- vii)**Lala S.**, Pramanick S, Mukhopadhyay S., Bandyopadhyay S., Basu M.K (2004). Harmine: Evaluation of its antileishmanial properties in various delivery systems.

*Journal of Drug Targeting*. 12(3): 165-175.(**\*Citations 68 , \*SNIP 0.609 \*SJR 0.696 \*IF 1.907**)

viii) **Lala S.**, Nandy A.K., Mahato S.B., Basu M.K. (2003) Delivery *in vivo* of 14-deoxy-11-oxoandrographolide, an antileishmanial agent, by different drug carriers. *Indian Journal of Biochemistry and Biophysics*. 40(3):169-174.(**\*Citations 18 \*SNIP 0.267 \*SJR 0.187 \*IF 0.252**)

ix) Chakraborty S. and **Lala S.** (1998) Assessment of the antifertility effect of phaseolinone, an antileishmanial agent, in male rats. *Contraception*. 58(3):183-191. (**\*Citations 7 \*SNIP 1.107 \*SJR 1.098 \*IF 1.615**)

<b>Citation indices</b>	<b>All</b>	<b>Since 2010</b>
Citations	256	156
h-index	7	7
i10 index	7	6

#### **Paper Presentations in International and National Conferences:**

- i) A. Maity, S. Biswas, S. Chakraborty, N.B. Mondal NB, **S. Lala**(2011) Pentamidine isethionate loaded mannosylated poly-lactide-co-glycolide nanoparticles for effective management of visceral leishmaniasis. *2<sup>nd</sup> International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)*, IIT Guwahati, India.
- ii) A. Maity, S. Biswas, S. Chakraborty, N.B. Mondal, **S. Lala** (2011) Construction and application of mannose-grafted poly-DL-lactide-co-glycolide nanoparticles for active targeting of macrophages. *World Congress on Biotechnology (OMICS)*, Hyderabad, India.
- iii) R. Tyagi R, **S. Lala**, **A. K. Verma**, A.K. Nandy, S.B. Mahato, A.N. Maitra, M.K. Basu (2004) Targeted delivery of arjunglucoside I using surface hydrophilic and hydrophobic nanocarriers to combat experimental leishmaniasis. *International Conference on Soft Matter*, Jadavpur University, Kolkata, India,
- iv) **S. Lala**, S. Pramanick , S. Mukhopadhyay, S. Bandyopadhyay, M.K. Basu (2003) Harmine: Evaluation of its antileishmanial properties in various vesicular delivery systems. *6th International Symposium on Biochemical Roles of Eukaryotic Cell Surface Molecules*, Indian Institute of Chemical Biology, Kolkata, India .

v) **S. Lala S.**, S. Chakraborty (2000) Evaluation of the antifertility potential of the antflagellate agent asperlin in male rats. *International Congress on Fertilization, Embryo Development and Implantation*, National Institute of Immunology, New Delhi, India.

vi) **S. Lala**, S. Chakraborty (1997): Evaluation of the antifertility potential of the antflagellate agent phaseolinone in male rats *Indian Council of Medical Research Young Scientists' Symposium on Reproductive Health Issues*, Guwahati, Assam, India.

**b) Dr. Mithu Biswas (Das) :**

i) **Das M.**, Banerjee R., Bal S.(2008) Evaluation of Physicochemical Properties of Enzyme Treated Brown Rice (Part B) *Journal of Food Science and Technology*, 41 (10): 2092-2097. (\*Citations 30 \*SNIP 0.380 \*SJR 0.210 \*IF 2.545)

ii) **Das M.**, Gupta S., Kapoor V., Banerjee R., Bal S.(2008) Enzymatic Polishing of Rice – A New Processing Technology (Part A), *Journal of Food Science and Technology*, 41 (10): 2079-2084. (\*Citations 37 \*SNIP 0.380 \*SJR 0.210 \*IF 2.545)

iii) **Das M.**, Banerjee R., Bal S.(2008) Multivariable parameter optimization for endoglucanase production by *Trichoderma reesei* Rut C-30 from *Ocimum gratissimum* seed *J. Braz. Arch. Biol. Technol.* 51 (1): 35 – 41. (\*Citations 11 \*SNIP \*SJR: \*IF 0.45)

iv) Roy R, **Das M.**, Banerjee R., Bhowmick AK.(2006) Comparative studies on crosslinked and uncrosslinked natural rubber biodegradation by *Pseudomonas* sp., *Bioresource Technology*, 97 : 2485-2488. (\*Citations 7 \*SNIP 1.988 \*SJR 1.342 \*IF- 4.980)

v) Roy R., **Das M**, Banerjee R., Bhowmick AK. (2006) Comparative studies on rubber biodegradation through solid-state and submerged fermentation, *Process Biochemistry*, 41 :181-186.(\*Citations 13 \*SNIP 1.562 \*SJR 1.172 \*IF- 2.627)

<b>Citation indices</b>	<b>All</b>	<b>Since 2010</b>
Citations	99	83
h-index	5	4
i10 index	4	4

**Paper Presentation at Conferences:**

- i) **M. Das**, Banerjee, S. Bal.(2003) Enzymatic treatment of rice, International conference on *Emerging Frontiers at the Interface of Chemistry and Biology* [ICB-2003], Trivandrum, India.
- ii) **M. Das**, R. Banerjee, S. Bal.(2004) Purification and characterization of endoglucanase of *Trichoderma reesei* Rut C-30 on a novel cellulosic substrate, First BRSI (Biotech Research Society of India) Convention and National Symposium on *Developments in Biotechnology; Emerging Trends and Challenges*, Jalgaon, India.
- iii) **M. Das**, D. Singh, R. Banerjee, S. Bal. (2004) Optimization of cellulase production under mSSF by *Trichoderma reesei* Rut C-30 grown on a novel substrate. International conference on *Emerging Technologies in Agricultural and Food Engineering* [ETAE-2004], IIT Kharagpur, India.
- iv) **M. Das**, R. Banerjee, S. Bal.( 2005) Development of technology for enzyme treated germinated brown rice, Second Convention, Biotech Research Society of India, *Path to Health- Biotechnology Revolution in India*, Anna University, Madurai, India.

20. Areas of consultancy and income generated: Nil

21. Faculty as members in

- a) National committees
- b) International Committees
- c) Editorial Boards: Nil

22. Student projects: Nil

- a. Percentage of students who have done in-house projects including inter-departmental/programme: N.A.
- b. Percentage of students placed for projects in organizations outside the institution i.e.in Research laboratories/Industry/ other agencies: N.A.

23. Awards / Recognitions received by faculty and students: Nil

24. List of eminent academicians and scientists / visitors to the department: Nil

25. Seminars/ Conferences/Workshops organized & the source of funding: Nil

- a) National: A U.G.C sponsored Workshop has been sanctioned and is proposed to be held in December 2015.
- b) International

26. Student profile programme/course wise: 2013-2014

Name of the Course/programme (refer question no. 4)	Applications received	Selected	Enrolled		Pass percentage
			*M	*F	
<b>B.Sc. (Honours)</b>	90	23	17	6	
<b>B.Sc.(General)</b>	15	69			<b>72.46%</b>

\*M = Male \*F = Female

#### 27. Diversity of Students

Name of the Course	% of students from the same state	% of students from other States	% of students from abroad
<b>B.Sc. (Honours)</b>	100%	0%	0%
<b>B.Sc. (General)</b>	100%	0%	0%

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defence services, etc. ? Our first of B.Sc. (Honours) batch has not yet graduated. Data for B.Sc.(General) students is not available.

29. Student progression: Our first batch of B.Sc. (Honours) batch has not yet graduated. Data for B.Sc.(General) students is not available.

Student progression	Against % enrolled
UG to PG	Not Applicable (N.A.).
PG to M.Phil.	N.A.
PG to Ph.D.	N.A.
Ph.D. to Post-Doctoral	N.A.
<b>Employed</b> <ul style="list-style-type: none"> <li>• Campus selection</li> <li>• Other than campus</li> </ul>	N.A.  Data not available



recruitment	
Entrepreneurship/Self-employment	Data not available

30. Details of Infrastructural facilities:

a. Library: Seminar Library with Reading facility

No. of books: 200 (approx.)

b. Internet facilities for Staff & Students: Desktop and Laptop Computers with wireless Broadband

c. Class rooms with ICT facility: i) Overhead projector ii) LCD projector

d. Laboratories: The Botany laboratory is equipped with refrigerated ultracentrifuge, clinical centrifuge, distillation plant, digital microbalance, digital balance, magnetic stirrer, cyclomixer, pH meter, digital colorimeter, digital spectrophotometer, light microscope with photographic attachment, laminar air flow cabinet, thermostatic and B.O.D. incubators, autoclave, thermostatic water bath along with simple and compound microscopes, stage and ocular micrometers and camera lucidas for all students as well as a good collection of permanent slides, herbarium sheets and preserved jar specimens.

31. Number of students receiving financial assistance from college, university, government or other agencies:

B.Sc. (Honours): 7 (SC stipend)      B.Sc (General) : 7 (SC stipend)

32. Details on student enrichment programmes (special lectures workshop / seminar) with external experts: Nil

33. Teaching methods adopted to improve student learning:

- i) Use of overhead projectors for 90% lectures, especially to show diagrams.
- ii) Use of Powerpoint presentations and LCD projector for selected lectures.
- iii) Use of computer animations and multimedia for selected lectures.

34. Participation in Institutional Social Responsibility (ISR) and Extension Activities: Nil

35. SWOC analysis of the department and Future plans:

The Botany department is successfully conducting the B.Sc. (General) Course of the University of Calcutta since 2002. The B.Sc.(Honours) course has been introduced in the session 2012-2013 and its first batch is about to graduate.

The Department prides itself on its modern infrastructure and young and

dynamic faculty. It has a well-stocked seminar library with a good collection of valuable reference books. Its lending library, integrated with the main college library, allows students to borrow sufficient books for their academic needs. The sincerity and efficiency of our faculty members is lauded throughout the college. Two of our faculty members hold Ph.D. degrees from premier Institutes and have a very good research career behind them. Others hold post-graduate degrees. Lectures and practical classes are held with utmost regularity and meticulous care. Overhead projectors are used regularly for lectures and occasionally an LCD projector is employed for Powerpoint presentations. A few lectures use multimedia and computer animations. Computer facilities with wireless broadband internet access is provided to faculty and students. The laboratory is well equipped with scientific instruments and specimens as mentioned earlier. Our department is probably the only undergraduate department in the city of Kolkata to have a refrigerated ultracentrifuge. Excursions and field studies are organised regularly as prescribed in the Syllabus.

The main weakness of the Department is that, the quality of students admitted not being of a very high standard, their academic performance is often unsatisfactory. Moreover, the research facilities in the Department are in the process of being developed and are not yet adequate. The lack of sufficient laboratory space is a serious constraint in expansion.

The Department is at present in the process of expanding its academic activities. The B.Sc. (Honours) course has just gained foothold. The M.Sc.(Distance Education) course of the Directorate of Distance Education, Vidyasagar University, West Bengal is about to be introduced from the current session (2014-2015). Occasionally, the Department endeavours to conduct vocational training courses and workshops to prepare students for employment, especially self-employment. A proposal for such a workshop on cultivation of edible mushrooms has been submitted to UGC for approval and funding.

We also intend to improve our research infrastructure to become self-sufficient as much as possible. A tissue culture facility is in the anvil. We are making efforts to procure funds to purchase some sophisticated research instruments like a lyophilizer, sonicator, carbondioxide incubator etc. In future, we aspire to introduce a regular M.Sc. course and offer facilities for Ph.D. research to qualified candidates.