

ABHISHEK DATTA

M.Sc. Biotechnology, IIT Bombay.

B.Sc. Microbiology, University of Calcutta.

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19th March 1996 

Degree	University/Board	Institute	Year	Grades
M.Sc. Biotechnology	IIT Bombay	IIT Bombay	2020	8.7 CPI
B.Sc. Microbiology	University of Calcutta	Gurudas College	2018	61.25 %
Intermediate +2	WBCSE	Hindmotor High School	2014	76.4 %
Matriculation	WBBSE	Hindmotor High School	2012	83.14 %

ACADEMIC ACHIEVEMENTS

- Awarded the degree of **Masters of Science in Biotechnology** from **Indian Institute of Technology, Bombay**. [2020]
- English Proficiency Test - Scored **109 out of 120** in **TOEFL iBT**. [2019]
- Secured an **All India Rank of 116** in **CSIR-UGC-NET** amongst **83055** candidates and qualified for Junior Research Fellowship award. [2019]
- Qualified for **Joint Graduate Entrance Examination for Biology and Interdisciplinary Life Sciences** 2020. [2019]
- Secured **97.56** percentile in **IIT Joint Admission Test for M.Sc. Biotechnology** amongst **4559** candidates. [2018]
- Secured **99.84** percentile in **IIT Joint Admission Test for M.Sc. Biological Science** amongst **7950** candidates [2018]
- Graduated from **Gurudas College** under the **University of Calcutta** with a **Bachelor of Science** degree in **Microbiology Honors**, with first class. [2018]

KEY PROJECTS

“Construction of various secondary structures of *capD* mRNA in *Streptococcus pneumoniae* by site-directed mutagenesis.”

[2019-2020]

Project Supervisor – Dr. Anirban Banerjee, IIT Bombay.

- Cloned putative thermosensing gene of *S. pneumoniae* in *E. coli* DH5 α along with promoter to study its property in a heterologous system.
- Performed routine Western Blot to quantify the amount of target protein expressed and qRT-PCR to check the difference at mRNA levels at different temperatures.
- Constructed site-directed mutants of the 5' UTR of the gene to find the residues important for thermoregulatory purposes.
- This work has implications in understanding the transition of commensal *S. pneumoniae* to its pathogenic form during a localized viral infection.

“Studying the effect of phytochemical as anti-biofilm and anti-septicaemia against yeast infection.”

[2017]

Project Supervisors- Dr. Anirban Mukherjee; Dr. Ripan Chandra Das, University of Calcutta.

- Identification and extraction of the bioactive compounds from *Plumbago* sp. & *Costus* sp. and their purification by Thin Layer Chromatography and Column Chromatography.
- Several combinations of phytochemical and synthetic antibiotic at different conditions were tested against both planktonic and biofilm form of *Candida* sp.
- This work is focused on evaluating the degree of biofilm formation and septicemia at different conditions and developing an antibiotic assay against *Candida* sp.

OTHER PROJECTS

“Molecular Cloning of Green Fluorescent Protein gene in E. coli and purification of the gene product.”

[2019]

Supervisor: Dr. Kiran Kondabagil, IIT Bombay.

- Preparation of competent cells and molecular cloning of *gfp* gene in E. coli DH5 α and E. coli BL21 (DE3) using pET28a (+) plasmid.
- Induction gene expression of *gfp* gene in E. coli BL21 (DE3) using IPTG.
- Purification of GFP-his using Ni-NTA column-affinity chromatography.

“Phenotypic identification of unknown microbe from crude soil sample.”

[2019]

Supervisor: Dr. Prashant S. Phale; Dr. Anirban Banerjee, IIT Bombay.

- Phenotypic characterization of microbial colonies along with bacterial growth curve.
- Biochemical characterization of an unknown bacterial sample selected from the crude soil sample, IMViC, Catalase, Oxidase, Starch hydrolysis, Haemolysis (blood agar), Sugar utilization test (with Durham tube) performed.

“A comparative biophysical study between Human Serum Albumin and Bovine Serum Albumin.”

[2019]

Supervisor: Dr. Samir K. Maji; Dr. Dulal Panda, IIT Bombay.

- Analysis of Secondary structures of HSA and BSA, Hydropathy plots, and other bioinformatics study.
- Fluorimetric study of the two protein molecules based on intrinsic protein fluorescence and their comparison with NATA.
- Protein denaturation studies with Spectrofluoroscopy (Fluorescence quenching) and Circular Dichroism Spectroscopy using guanidine hydrochloride and temperature.

“Construction of Phylogenetic tree linking extremophile Archaea of psychrophilic and thermophilic origin.” [A part of Bioinformatics coursework]

[2019]

Supervisor: Dr. Prasenjit Bhaumik.

SEMINAR ATTENDED

- Attended colloquium of **Dr. Gagandeep Kang** from **Translational Health Science and Technology Institute, Haryana** conducted by IIT Bombay, on “**Reimagining vaccines: Making choices on what to work on and how**” [2020]
- Attended colloquium of **Dr. Geeta Narlikar** from **University of California, San Francisco** conducted by IIT Bombay on “**How a shape shifting genome controls cell fate**” [2019]
- Oral poster presentation on “**Screening of Phytochemical with dual role against Multi-Drug Resistant Yeast and Bacterial Biofilm.**” at **UGC Sponsored National Level Seminar** organized by, **Gurudas College** in collaboration with **IISER, Kolkata.** [2017]

SKILL SETS

Technical Skills:

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|----------------------|---------------------------------------|-----------------------------|
| • Molecular Cloning | • Cell Culture | • Microbiology techniques |
| • In-vitro Infection | • Protein Expression | • Affinity Chromatography |
| • Western Blot | • UV-Visible Spectrophotometry | • Spectrofluorimetry |
| • CD Spectroscopy | • cDNA synthesis | • Whole Cell RNA extraction |
| • Electroporation | • Flow Cytometry (sample preparation) | • Enzyme kinetics |

Bioinformatics Skills:

- | | | |
|------------|--------------------------------|-----------------|
| • PyMOL | • Basic C Programming & Python | • Phylogeny |
| • AutoDock | • Clustal X | • Marvin Sketch |