

Contents

Sl. No.		Topic		
A.		Background	2	
B.		Functions	2	
C.		Teaching	2	
	I)	Field of specialization for M. Sc. and Ph. D. degrees	3	
	II)	Undergraduate courses	3	
	III)	Postgraduate courses	3	
	IV)	Postgraduate requirement	5	
	V)	Students' achievement	5	
D.		Research activity	5	
	a)	Areas of research	5	
	b)	Awards and Gold Medals	5	
	c)	Scholarships, stipends and fellowships	6	
	d)	Ongoing research projects	6	
E.		Extension activities	6	
F.		Infrastructural and Support Facilities available	7	
G.		Faculty and staffs	8	
Н.		Doctoral thesis completed	8	
	i)	Ph. D. students registered during 2016-17	9	
	ii)	Ph. D. students registered during 2017-18	9	
I.		Master Degree thesis completed	9	
	i)	M. Sc. (Ag) students registered during 2016-17	9	
	ii)	M. Sc. (Ag) students registered during 2017-18	9	
J.		Papers & books published	10	
K.		Seminar, Symposium, Conference, Training and Winter /Summer /Refresher course/short course attended /organized	11	
	a)	Faculties of department	11	
	b)	Students/Research Scholars of department	11	
L.		Any other (Achievement)	12	
M.		Photo gallery	13	

Annual Report 2016-17 and 2017-18

Department of Biochemistry at a Glance

A. Background:

The North Bengal Campus of Bidhan Chandra Krishi Viswavidyalaya at Cooch Behar was established in the year 1979. During that time the undergraduate courses of biochemistry were taught under the aegis of Department of Agril. Chemistry and Soil Science. In the year 2001 the North Bengal Campus was upgraded into a state agricultural university in the name of Uttar Banga Krishi Viswavidyalaya by the Government of West Bengal. Since then the Department of Biochemistry has come into existence as a full-fledged department. The compulsory and elective undergraduate courses of biochemistry were being catered by the department during that time. Later on the postgraduate degree programmes have also been started. The Ph. D. programme in the department has started in the year 2009-10 and the masters' degree programme in the year 2015-16.

B. Functions:

- To impart teaching in Biochemistry and Agricultural Chemicals for B. Sc. (Ag.) Hons., B. Sc. (Hort.) Hons., M. Sc. (Ag.) and Ph. D. degrees.
- To carry out basic and application oriented research programmes in the fields of Biochemistry and Agricultural Chemicals.

C. Teaching:

At the undergraduate level, the Department of Biochemistry is catering the compulsory courses for both B. Sc. (Ag.) Hons. and B. Sc. (Hort.) Hons. programmes as per the syllabus recommended by both the Fourth and Fifth Deans' Committee. The department is also offering some courses under Basic Science Module as per the Fourth Deans' Committee recommended syllabus and some elective courses as per the Fifth Deans' Committee recommended syllabus.

In case of postgraduate level of studies the department is following the BSMA Committee recommended syllabus for catering all of its masters' and doctoral degree courses.

I) Field of specialization for M. Sc. and Ph. D. degrees:

- Biochemistry
- Agricultural Chemicals

II) Undergraduate courses:

i) Compulsory courses:

a) As per Fourth Deans Committee recommendations

Sl. No.	Course no.	Title	Credits	Semester
1.	BCH 201	Biochemistry-I	2 + 1	Third
2.	BCH 301	Biochemistry-II	1+0	Fifth
3.	BCH 302	Agricultural Chemicals	1 + 0	Fifth

b) As per Fifth Deans Committee recommendations

Sl. No.	Course no.	Title	Credits	Semester
1.	BCH 151	Fundamentals of Plant Biochemistry	2 + 1	Second

ii) Elective courses:

a) As per Fourth Deans Committee recommendations (Being offered as Module course)

Sl. No.	Course No.	Title	Credits	Semester
1.	BCH-401	Principles of Biochemistry	2+0	Seventh
2.	BCH-402	Plant Metabolic pathways	2+0	Seventh
3.	BCH-403	Molecular Biology of the Cell	2+0	Seventh
4.	BCH-404	Analytical Techniques of Biochemistry	0+1	Seventh
		and Molecular Biology		

b) As per Fifth Deans Committee recommendations (Being offered as Elective course)

Sl. No.	Course no.	Title	Credits	Semester
1.	ELC* 251	Agrochemicals	2+1	Fourth

^{*}Offered jointly by Dept. of Biochemistry and Dept. of Soil Sci. & Agril. Chem.

III) Postgraduate courses: The Department is following BSMA Committee recommended syllabus as given below for catering all of its masters' and doctoral degree courses.

i) Biochemistry:

Course No.	Course Title	Credits			
M. Sc. (Ag.)					
BCH 501	Basic Biochemistry	2+1			
BCH 502	Chemistry of Biomolecules	2+1			
BCH 503	Fundamentals of Enzymology	2+1			
BCH 504	Analytical Techniques in Biochemistry	1+2			
BCH 505	Plant Biochemistry I	2+1			
BCH 506	Metabolic Pathways I	2+0			
BCH 507	Molecular Biology	2+1			
BCH 508	Pesticide Biochemistry	2+0			
BCH 509	Basics of Immunology	2+1			
BCH 510	Food and Nutritional Biochemistry	2+0			
BCH 591	Master's Seminar	1+0			
BCH 599	Master's Research	20			
	Ph. D.				
BCH 601	Advanced Enzymology	2+0			
BCH 602	Metabolic Pathways II	2+0			
BCH 603	Transport Biochemistry	2+0			
BCH 604	Advanced Molecular Biology	2+0			
BCH 605	Advanced Techniques in Biochemistry	0+2			
BCH 606	Plant Biochemistry II	2+0			
BCH 607	Current Topics in Biochemistry	1+0			
BCH 608	Functional Genomics and Metabolomics	2+0			
BCH 609	Environmental Biochemistry	2+0			
BCH 691	Doctoral Seminar I	1+0			
BCH 692	Doctoral Seminar II	1+0			
BCH 699	Doctoral Research	45			

ii) Agricultural Chemicals:

Course No.	Course Title	Credits
	M. Sc. (Ag.)	
BCH 521	Basic Chemistry-I	2+1
BCH 522	Chemistry of Insecticides and Acaricides	2+1
BCH 523	Basic Laboratory Techniques	1+2
BCH 524	Pesticide Residue Analysis	1+1
BCH 525	Chemistry of Fungicides and Nematicides	2+0
BCH 526	Chemistry of Herbicides and PGRs	2+1
BCH 527	Chemistry of Botanicals and Biopesticides	2+0
BCH 528	Analytical Techniques in Pesticide Chemistry	2+1
BCH 529	Basic Chemistry-II	2+0
BCH 530	Pesticide Formulations	2+1
BCH 531	Movement, Degradation and Metabolism of Pesticides	2+0
BCH 591	Master's Seminar	1+0
BCH 599	Master's Research	20

	Ph. D.	
BCH 621	Regulations and Quality Control of Pesticides	2+0
BCH 622	Advances in Insecticide Chemistry	2+0
BCH 623	Advances in Fungicide and Herbicide Chemistry	2+0
BCH 624	Practicals in Pesticide Chemistry	0+1
BCH 625	Special Topics in Agrochemicals	1+0
BCH 626	Principles of Pesticide Chemistry	2+0
BCH 627	Pesticides and Environmental Risk Assessment	2+0
BCH 691	Doctoral Seminar I	1+0
BCH 692	Doctoral Seminar II	1+0
BCH 699	Doctoral Research	45

IV) Postgraduate requirement:

- i) For M. Sc. (Ag) degree: Four years B. Sc. (Ag) Hons./B. Sc. (Hort) Hons. degree
- ii) For Ph. D. degree: M. Sc. (Ag) degree in Biochemistry/ Agril. Chemicals

V) Students' Achievement:

JRF:

2016-17: Plant Biotechnology - 5, Plant Science - 2, Combined Biotechnology (JNU) - 8, Others (JAM) - 1

2017-18: Combined Biotechnology (JNU) - 16

SRF: 1with AIR-2, ARS-NET:1, ARS-Prelims: 2

D. Research Activity:

a) Areas of research:

Biochemistry:

- Biochemical analysis of indigenous crop plants with special reference to enzymology, lipid biochemistry, chemical biology
- Molecular functioning of plant defense pathways during biotic and abiotic stresses
- In vitro propagation methods

Agricultural Chemicals:

- Degradation and metabolism studies of pesticides
- Pesticide residue analysis

b) Awards and gold medals:

❖ Poster on "Development of PCR based detection system for Geminivirus from Solanaceous vegetables" by Debayan Mondal, Poulami Sil, N. Sahana,

- S. Mandal and G.K. Pandit based on dissertation work of M. Sc. (Ag) programme of Dept. of Biochemistry, UBKV received Best Poster Award at the 12th National Symposium on "Biotic Stress Management Strategies: Challenges and environmental Harmonization" organized by Society of Plant Protection Sciences in the year 2017.
- ❖ Dr. Prithusayak Mondal received the best Oral Presentation Award in the National Conference organized by COBACAS held at RRS, Hill Zone, UBKV, Kalimpong in the year 2017.

c) Scholarships, stipends and fellowships:

University Merit scholarship (M. Sc.): 1 during 2016-17 and 1 during 2017-18

URS (Ph. D.) : 2

Swami Vivekananda Merit Scholarship: 1

d) Ongoing research projects:

Sl. No.	Name of project	Funding agency	Grant amount (Rs. lakh)	Status
1.	Residue studies of some pesticides in different crops	Willowood Chemicals Pvt. Ltd.	17.03	Ongoing (2016-17 -)
2.	Establishment of plant tissue culture unit for research, training, and commercial quality planting material production at UBKV	Directorate of Research, UBKV	21.65	Ongoing (2016-17 -)
3.	Generation of elite disease free planting material of turmeric through micropro- pagation and its distribution among tribal farmers of terrain plain of West Bengal	DST	22.73	Ongoing (2017-18 -)
4.	In vitro mass multiplication and conservation of some endangered citrus species of NEH region of India	DBT	24.09	Ongoing (2017-18 -)
5.	Seed potato (minituber) production and commercialization in northern plains and hilly region of West Bengal	RKVY	166.00	Ongoing (2017-18 -)
6.	Promotion of oilseeds crops in northern districts of West Bengal for livelihood security of small and marginal farmers	NMOOP, GOI	16.00	Ongoing (2017-18 -)

E. Extension activities:

A two-days training programme entitled "Farmers Training on Modern Cultivation Practices of Elite Turmeric Variety 'Suranjana' (TCP 2)" under the DST, Government of India funded project "Generation of elite, disease free planting materials

of turmeric through micro-propagation and its distribution among tribal farmers of terrain of West Bengal" was conducted by Dr. Nandita Sahana, Assistant Professor and Principal Investigator, Department of Biochemistry. The trainings were held on 24.03.2018 at Uttar Chakoakheti, Alipurduar and on 25.03.2018 at Khagribari, Cooch Behar with participation of 29 and 32 farmers respectively. Teachers from different departments of the Faculties of Agriculture and Horticulture participated as experts. The following messages were disseminated to the farmers in the training.

- 1) Use elite variety of turmeric 'Suranjana (TCP 2)' as planting material released by the AICRP,UBKV for better yield potential as well as superior rhizome quality.
- 2) Cultivate turmeric in the kitchen garden, fallow land as well as under the arecanut orchard.
- 3) Local farmers are awared of the medicinal properties of turmeric.
- 4) Practice organic farming for turmeric cultivation.
- 5) Turmeric cultivation can be beneficial for the local farmers from the economic point of view.
- 6) Turmeric based cottage industry can be established, that will be of immense help for the economic upliftment of the locality.

F. Infrastructural and Support Facilities available:

Class rooms: One PG class room equipped with AC and audio-visual aids.

Laboratories: The department is having one well equipped UG laboratory and two PG-cum-research laboratories namely Biomolecules Laboratory and Pesticides Laboratory and one dedicated Instrumentation Facility.

Instruments: The laboratories are equipped with instruments like UV-VIS Spectrophotometer, Cold Centrifuge, PCR, Protein Electrophoresis Unit, Western Apparatus, Refrigerator (-20 degree), Refrigerator (normal), Microwave Oven, Laminar Airflow, Agarose Gel Electrophoresis Unit, PAGE Unit, Dry Bath, Gel Transfer Unit, pH Meter, BOD Incubator, Shaker Incubator, Rotary Vacuum Evaporator, Hot Air Oven, Precision Balance (Electronic), Low Speed Centrifuge, Hot Plate, Magnetic Stirrer, Electrical Shaker, Plant Grinder, Water Baths (ordinary & thermostatic), Ultrasonic Bath, Soxhlet Extraction System, Vortex Shaker, Tissue Homogenizer, Melting Point Apparatus, UV Visualization Chamber (for TLC).

❖ In addition to catering courses for the students of this department, the department is offering courses to the students of many other departments of both the Faculties of Agriculture and Horticulture as minor and supporting courses.

❖ The technical and laboratory facilities including instruments of the department are being utilized by the students of many other departments of both the Faculties of Agriculture and Horticulture for executing a considerable part of their research programmes.

G. Faculty and staffs:

a) Head of the Department: Prof. Goutam Kumar Pandit

b) Faculty:

Sl. No.	Name	Designation	Specialization	Contact address
1.	Dr. Goutam Kumar	Professor	Agricultural	Dept. of Biochemistry,
	Pandit		Chemicals,	Uttar Banga Krishi Viswavidyalaya,
			Natural products	Pundibari-736165 Cooch Behar
			chemistry	
				E-mail: gkpandit@yahoo.co.in
2.	Dr. Somnath	Assistant	Enzymology,	Dept. of Biochemistry,
	Mandal	Professor	Chemical	Uttar Banga Krishi Viswavidyalaya,
			Biology	Pundibari-736165 Cooch Behar
				E-mail: smandal8183@gmail.com
3.	Dr. Nandita Sahana	Assistant	Molecular	Dept. of Biochemistry,
		Professor	Biology, In vitro	Uttar Banga Krishi Viswavidyalaya,
			propagation	Pundibari-736165, Cooch Behar
				E-mail: nanditasahana@gmail.com
4.	Dr. Prithusayak	Assistant	Agricultural	Dept. of Biochemistry,
	Mondal	Professor	Chemicals	Uttar Banga Krishi Viswavidyalaya,
		(Research)		Pundibari-736165 Cooch Behar
				Email: prithusayak@gmail.com

c) Non-teaching staff:

Sl.No.	Name	Designation	Contact address
1.	Mrs. Banhi Bhattacharya	Technical Asstt. Gr II	Dept. of Biochemistry, Uttar Banga Krishi Viswavidyalaya, Pundibari-736165, Cooch Behar, West Bengal
2.	Mr. Shyamlal Sutradhar	Lab. Attendant	Do

H. Doctoral thesis completed: Nil

Sl. No.	Title	Year	Author	Chairman

i) Ph. D. students registered during 2016-17

Sl.	Name of student	Regn. No.	Chairman	Proposed research topic	
No.					
1.	Poulami Sil	A-2016-7-D	Prof. G. K. Pandit	Molecular Characterization of Host	
				Virus Interactions in Begomovirus	
				Infected Chilli (Capsicum annuum L.) of	
				Terai Region of West Bengal	

ii) Ph. D. students registered during 2017-18

Sl.	Name of student	Regn. No.	Chairman	Proposed research topic
No.				
1.	Debayan Mondal	A-2017-8-D	Dr. N. Sahana	Evaluation of non basmati aromatic rice cultivars grown in North Bengal for genetic resistance and defense response against rice blast disease
2.	Suman Natta	A-2017-28-D	Dr. S. Mandal	Characterization and evaluation of nutritional components of jackfruit (<i>Artocarpus heterophyllus</i>) for potential applications as functional food

I. Master Degree thesis completed: One

Sl. No.	Title		Year	Author	Chairman
1.	Molecular Characterization	n of	2017	Debayan	Prof. Goutam Kr. Pandit
	Geminiviruses from	Tomato		Mondal	
	(Lycopersicon esculentum Mill.) in Terai			
	Region of West Bengal				

i) M. Sc. (Ag) students registered during 2016-17: Nil

Sl. No.	Name of student	Regn. No.	Chairman	Proposed research topic

ii) M. Sc. (Ag) students registered during 2017-18:

Sl.	Name of student	Regn. No.	Chairman	Proposed research topic
No.				
1.	Rosalin Laishram	A-2017-22-M	Dr. N. Sahana	Development of novel turmeric based nano formulations and its characterization

J. Papers & books published

Sl. No.	Title	Author	Journal
Pape	r (Research and Extension)		
1.	Antagonism Between LOX-pathway Enzymes and Antioxidative Molecules –a Potential Gateway for Flavour Quality Improvement in Soybean	Mandal S and Santha I. M.	Journal of Agriculture and Technology,2016, 3 (1): 30-39
2.	Effect of imidacloprid on the activities of some enzymes of cabbage (Brassica oleracea L. var. capitata) leaf	Ashrafi, M. A. and Pandit, G. K.	International Journal of Recent Scientific Research, 2016,7 (1): 8232-8235
3.	Preparation of azomethine based nano- chemicals and antibacterial activity against nitrifying bacteria.	Mondal P and Kumar R	Pesticide Research Journal, 2016, 28 (2): 194-200
4.	Azomethine based nano-chemicals: Development, in vitro and in vivo fungicidal evaluation against Sclerotium rolfsii, Rhizoctonia bataticola and Rhizoctonia solani	Mondal P, Kumar R and Gogoi R	Bioorganic Chemistry, 2017, 70: 153-162
5.	Development of a PCR Based Detection System for Begomoviruses from Solanaceous Vegetables	Mondal D, Sil P, Sahana N, Mandal S, Pandit GK	International Journal of Bioresource Science, 2018, 4 (2): 101-105
6.	Physico-Chemical Characters of Pumpkin (Cucurbita moschata Duch.) Ex Poir Genotype against the Melon Fly (Bactrocera cucurbitae) Reveals Resistance Traits in the Terai Region	Gazmer R, Mandal S, Laskar N	International Journal of Current Microbiology and Applied Sciences, 2018, 6 (10): 2023- 2031

Book	Book Chapter					
1.	Extraction and Concentration Methods for Bio-	Mandal S, Paul P.K	Technological			
	active Components in Fruits and Vegetables	and Sahana N	Interventions in the			
			processing of fruits			
			and vegetables Apple			
			Academic Press 2018			
			Chapter 14			

Book					

K. Seminar, Symposium, Conference, Training and Winter /Summer /Refresher course /short course attended /organized

a) Faculties of Department

Sl. No.	Seminar, Symposium, Conference, Training and Winter/Summer/Refresher course/short course	Faculty associated	Date	Venue	Attended /Organized
1.	Oral presentation at the National Conference on "Enhancing Nutritional Security through Climate Smart Farming Practices" organized by COBACAS	Dr. Prithusayak Mondal	March 17-18, 2017	RRS (Hill Zone), UBKV, Kalimpong	Attended
2.	Short course on "Synthesis and Characterization of Nanomaterials for Plant Protection and Growth"	Dr. Prithusayak Mondal	March 5-14, 2018	Maharana Pratap Univ. of Agri. Technol., Udaipur	Attended
4.	Training on Laboratory Quality System Management and Internal Audit as per ISO/IEC 17025: 2017	Dr. Prithusayak Mondal	July 23- 27, 2018	NIPHM, Hyderabad	Attended

b) Students/Research Scholars of Department

Sl. No.	Seminar, Symposium, Conference, Training and Winter/ Summer/ Refresher course/short course	Student /Research Scholar	Date	Venue
1.	Participated in the Workshop on "Food Security and Climate Change" organized by UBKV	Sayan Chowdhury	Dec. 05, 2016	UBKV, Pundibari
2.	Poster presentation at the National Conference on "Enhancing Nutritional Security through Climate Smart Farming Practices" organized by COBACAS	Sayan Chowdhury	March 17- 18, 2017	RRS (Hill Zone), UBKV, Kalimpong
3.	Poster presentation at the 12th National Symposium on "Biotic Stress Management Strategies: Challenges and environmental Harmonization" organized by Soc. Pl. Prot. Sci.	Debayan Mondal and Poulami Sil	Feb. 17- 19, 2017	UBKV, Pundibari
4.	Participated in the sensitization workshop on "Experiential Learning, Entrepreneurship and Needs of Agro-Industry" organized by UBKV in association with ICAR-NAARM and BCCI	Sayan Chowdhury	Feb. 28- Mar. 01, 2017	UBKV, Pundibari

5.	Poster presentation at the National	Sayan	Jan. 12-	FACC, BCKV,
	Conference on "Innovative farming for	Chowdhury	13, 2018	Kalyani
	Food and Livelihood security in			
	changing climate" jointly organized by			
	SAAI and AICRP on STCRC, BCKV			
	·			

L. Any other (Achievement):

a) Eminent Personality visit:

- 1) ICAR Peer Review Team Comprising members Dr. P.S. Pandey (ADG), EPHS, Dr. H.S. Nainawatee, Dr. S. K. Sharma, Dr, Subhashis Bandyopadhyay visited Dept. of Biochemistry from 15th to 16th June, 2017.
- 2) Dr. Tapan Kr. Mandal, Principal Scientist, NRCPB visited Dept. of Biochemistry on 18.01.2018.
- 3) Prof. Tapas K.Kundu, Director CDRI, Lucknow visited Dept. of Biochemistry on 28.03.18

b) Engagement of faculties of the department other than teaching:

- **Dr. Somnath Mandal:** Worked/working as Member of UG Admission Committee, Member of Anti-ragging Squad, Member of RKVY Monitoring and Implementation Cell, Provost, PCM and APCR Hall, Convener, Competitive Examination Cell in the University and acted as Facilitator of District level Quiz Competition at *Gyan-o-Bigyan Mela* organized by Sarba Siksha Mission, Cooch Behar.
- **Dr. Nandita Sahana:** Worked/working as Member of Faculty Council, Member of UG Admission Committee, Member of Anti-ragging Squad and Committee.

Photo Gallery: Department of Biochemistry





A part of the instrumentation facility of Department of Biochemistry



Synopsis seminar of Poulami Sil, Ph.D. student of department





Presentation on assignments for the course BCH 504 by the PG students



Final viva-voce of first M. Sc. (Ag) student of department







Research Scholars carrying out their works



Best Poster award given to the PG students of the department



Best Oral Presentation Award given to Dr. P. Mondal at the National Conference of COBACAS, 2017



Teachers' Day celebration and Fresher's Welcome at the department



Visit of Prof. Tapas K. Kundu at the department







Picnic of all staff and students of the department

Successful Students in JNU CEEB (2018) No. of Successful Candidates: 16

Samrat Das	Sohel Rahaman	Kingshuk Das	Deepanyeta
			Goswami
AIR-1	AIR-2	AIR-3	AIR-5
The state of the s			
Amitha Paul	Partha Mondal	Jeet Roy	Nithya S.
AIR-8	AIR-14	AIR (SC-1)	AIR-23



Successful Students in JNU CEEB (2017)

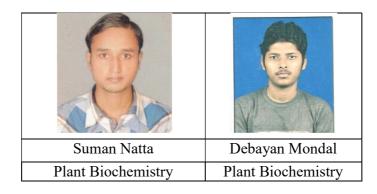
No. of Successful Candidates: 8



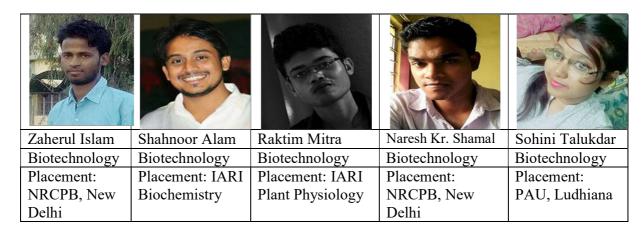
Successful student in ICAR-SRF in Plant Biochemistry (2017) and ICAR-NET (2017)



Successful Students qualified in ICAR ARS (Prelims) 2018: 2



Successful Students in ICAR JRF (2017) Number of Successful Candidate: 5 (Plant Biotechnology)



Successful Students in ICAR JRF (2017)
Number of Successful Candidate: 2 (Plant Science)

