



Curriculum Vitae of Professor Bolin Kumar Konwar

Name : Prof. Bolin Kumar Konwar **Designation** : Professor (Former Vice Chancellor,
Nagaland University (Central))

Present address: Mol. Biol & Biotech, School of Science & Technology
Tezpur University (Central), Napaam, Tezpur-784028, Dist-Sonitpur, Assam
Email: bkkon@tezu.ernet.in

Date of birth : 01.09.1958

Marital status : Married with two children

Educational qualification

Institute	Place	Examination	Year	Div/Class & Marks/OGPA	Prize/Scholarship
BPBMHS School	Sonari	HSLC	1975	Ist Divn, 68.63%	National/ICAR/ITA Scholarship
Assam Agril University	Jorhat	B Sc (Agri)	1981	Ist Class, OGPA 3.34 in 4.0 scale (71.6%)	Gold Medal & Gr I Merit Scholarship
Assam Agril University	Jorhat	M Sc (Agri) in Plant Breed. & Genetics	1984	Ist Class, OGPA 3.79 in 4.0 scale (85.8%)	DISTINCTION (above 80% marks)
M Sc (Agri) thesis – “Phenotypic stability for yield and morphophysiological traits of soybean [<i>Glycine max</i> (L) Merrill]”					
Imperial College of Sci, Tech & Medicine	London	DIC (Microb)	1992	-	Certificate
Imperial College, Univ. of London	London	Ph D (Plant Biotech)	1992	-	Certificate

Ph D thesis – “*In vitro* culture and genetic transformation of sugarbeet (*Beta vulgaris* L.)”

Experience

Institute	Place	Job	Duration	Nature of work
Towkok Tea Est.	Sonari	Management Trainee	June-Sept 1980	Tea garden & factory management
Assam Agril Univ	Jorhat	SRA/ Lecturer	April84- Dec85	Farmers’ field expts, teaching UG/PG courses
Assam Agril Univ	Jorhat	Asstt Prof	Jan86-Aug94	As above
Assam Agril Univ	Jorhat	Assoc Prof	Aug94- April95	Teaching UG/PG Agril Biotech and PBG courses, Res in BGA

Tocklai Expt Station, Tea Res Association (TRA)	Jorhat	Biotechnologist	April95- Dec97	Tea tissue & Cell cult, genet trans formation, Microb degradation of tea litters
Tocklai Expt Station, TRA	Jorhat	Dept I/C & Head of Dept	Dec97– Mar02	As above, dept admin & research
Tezpur University (Central)	Tezpur	Professor & HoD, HoD Cent of Petroleum Biotech	Mar02- April08	Teaching M Sc & Ph D, res on Petroleum Biotech, genomics & biochem of Med Plants
Tezpur University (Central)	Tezpur	Professor & Dean, Sci & Tech	April 08-Sept 2011	Same as above & School management (5 depts)
Nagaland Univ (Central) [camp: Lumami, Kohima, Dimapur, Mediziphema (Agri Sci & RD)]	HQ: Lumami	Vice Chancellor (on Deputation from Tezpur University)	(08.09.2011 – 07.09.2016)	Academic, admin & financial leadership and management
Tezpur University (Central)	Tezpur	Professor	08.09.2016 – till date	Teaching & Research of M Sc & Ph D students, res on Petroleum Biotech, metagenomics, microbial infection of women, industrial enzymes & adhesive of animal origin

Present position with the pay scale

Professor of Molecular Biology & Biotechnology, Tezpur University (Central)
Napaam -784 028, Assam Rs. 2,11,000 + DA

Research Projects carried out as Principal Investigator

Project title	Funding agency	Duration (yrs)	No of sci./ associates	Fund (Rs in lakh)
1. Collection, evaluation and improvement of <i>Azolla-Anabaena</i> symbiosis	ICAR	3 (1994-97)	1 RA (completed)	3.70
2. Embryo rescue and haploidy for cold tolerant rice improvement	AAU	5 (1993-98)	PG student 1 Scientist (left)	2.00
3. Breeding tomato for fruit size and resistance/tolerance to late blight	AAU	5 (1993-98)	PG student 1 Scientist (left)	1.20
4. Advanced work on Plant Biotechnology	Tea Board	5 (1995-00)	RFs 2 2 Scis. (completed)	130.00
5. A study on the utilisation of improved planting materials by the tea industry of NE India	Tea Board	1 (1999-00)	Sci. 1 (completed)	1.80
6. Recycling of tea and other organic	DBT	2 (1999-01)	RAAs 2	14.30

wastes to value added compost			Sci. 1	(Completed)
7. Collection, conservation and evaluation of tea germplasm	Tea Board	5 (1999-04)	Scis. 3	40.40
8. Characterisation and improvement of tea through biotechnological tools	DBT	3 (2001-04)	RFs 2 RAs 3	38.20 (left (completed)
9. Studies on functional genomics of tea, mentha and ashwagandha (New Millenium Techno Initiative: NMITLI)	CSIR	3 (2001-04)		42.00 (left (completed)
10. Petroleum Biotechnology	ONGCL	9 (1998-07)	SRFs 2	189.00 (Completed)
11. Medicinal plants of NE India	NMPB	3 (2005-08)	PF 1	10.00 (Completed)
12. Bioremediation of crude oil contaminated soil.	ONGC	5 (2009-14)	RF 4	70.03 (Completed)

Research areas and works

Tea Improvement

Clone improvement work carried out led to the development and release of two clones to the industry, viz. TV31 and TV32. Tea tissue culture and genetic transformation culminated into transfer and establishment of saplings in the field with effective hardening process. Genetic transformation of *in vitro* generated tea plantlets was successfully done with marker gene-based Ri plasmid.

Enriched the Tea Field Gene Bank to about 2,000 accessions from 1,000 at Tocklai Experimental Station, Tea Research Association, Jorhat by adding new genotypes. In fact, next to China with 2,500 accessions, this is the second largest collection of tea germplasms.

The research works carried out enabled us to publish 08 papers.

Phyto-medicinal compounds

The tetraploid *E. linguiformis* (48) was assessed to contain 86% flavoury compound anethole. The chemical can potentially be used as food and medicine additive. The plant is a better source for anethole against anise seed (82%) and funnel seed (75%). The chemical structure of anethole is determined (1-methoxy-4-(1-propenyl)-benzene).

The crude protein content in the fruit of *Spondias pinnata* is 3.34%, reducing sugar 69.56 mg g⁻¹, crude fibre 23.07 mg g⁻¹, phosphorous 0.483 mg g⁻¹, iron 0.043 mg g⁻¹, calcium 5.97 mg g⁻¹ and potassium 83.60 mg g⁻¹. The fruit also contains 0.06% '3 β-hydroxyolea-12-en-28-oic acid' commonly known as 'oleanolic acid'. The acid is antimicrobial against *Staphylococcus aureus* and *Bacillus subtilis*.

Leaf of *Streblus asper* is assessed to contain protein 16.73%, fat 1.03%, ash 8.1 mg g⁻¹, starch 12.05 mg g⁻¹, reducing sugar 1.15 mg g⁻¹ and crude fibre 17.08 mg g⁻¹. Also, lupeol [i.e. Lup-20(29)-en-3 β-ol'] 0.05%.

The tender leaves of *Zanthoxylum oxyphyllum* (2n=2x=36), *Rubus alceifolius* (2n=4x=28), and *Meyna spinosa* (2n=4x=44) contain antimicrobial compound 2-methylheptyl isonicotinate against *B. subtilis*, *E. coli*, *K. pneumoniae*, *S. aureus* and yeast *C. albicans*, whereas the mature fruits of *M. spinosa* contain oleanolic acid and oleanol. Genome size of *Zanthoxylum oxyphyllum* is 3.79 pg (3.70 x 10⁹), *Rubus alceifolius* 2.84 pg (2.77 x 10⁹) and *Meyna spinosa* 3.93 pg (3.84 x 10⁹).

Total phenolic and flavonoid content is high in *Amorphophallus paeoniifolius* (2n=2x=28). The DPPH free radical scavenging property is the highest in *Xanthosoma caracu* (2n=2x=26) and blood coagulation enhancing property high in *X. sagittifolium* (2n=2x=26). Five polyphenolic compounds, 3,4-dihydroxy benzoic acid, 3,4-dihydroxycinnamic acid, trans-in-

hydroxycinnamic acid, 4-hydroxy-3-methoxycinnamic acid and 4-hydroxy-3,5-dimethoxybenzoic acid were isolated from *Colocasia esculenta* ($2n=4x=28$). The genome size of *C. esculenta* is 14.1 pg (C-value). The small granule-sized starch of *C. esculenta* is suitable for baby food formulation as well as for making fine printing paper, plastic sheets as binder with orally active ingredients, and as carrier material in cosmetics. There is a potential of this starch in cosmetic, paper, textile and photographic industries. *C. esculenta* starch can be used in the synthesis of edible films.

The phyto-compound eclalbasaponin ($C_{32}H_{62}O_8$) was isolated from *Eclipta alba* [genome 4.27×10^9 (4.36 pg)], and aoenin ($C_{13}H_{18}O_4$) from *Aloe barbadensis* [4.42×10^9 bp (4.52 pg)]. These compounds showed highest antibacterial and antifungal activity, respectively. In DPPH scavenging assay, both eclalbasaponin and aloenin showed strong radical scavenging property as compared to the standard gallic acid and quercetin. The compounds were found to be non-irritant on rabbit skin. Warfarin at 1.7mg/kg for 60 days could induce alopecia in Wistar albino rats. The initial area of patchy hair-fall lead to total body hair loss. Both eclalbasaponin and aloenin showed good hair follicle regenerating ability in the case of warfarin induced alopecia in the animal models as compared to the standard drug minoxidil. The regeneration time of hair follicles as well as the time of completion of hair growth was much less in the case of eclalbasaponin treated animals in comparison to minoxidil treated animals. The length and weight of hair after treatment with eclalbasaponin increased as compared to minoxidil. No adverse effect was observed up to 15 days in the case of animals treated topically with eclalbasaponin and aloenin.

The works have led to the publication of 18 research papers, 12 book chapters and 02 books [Prof B K Konwar (2013). Medicinal Plant Repertoire: A Perspective of Biogeographical Gateway of India. Labanya Prakashan, Amingaon, Guwahati-781032, Assam, ISBN No. 978-81759-6902-5.

Dr Bolin Kumar Konwar (2015). Prospects of Microbe and medicinal plant resources (Ed), Educationist Press, a Divn of Write and Print Pub, New Delhi-110015, ISBN No. 978-93-84649-23-4].

Environmental Biotechnology

(a) Bioremediation of crude oil contamination

Potential hydrocarbon degrading bacteria were recovered the oil rich and oil contaminated sites in Assam and identified to be *Alcaligenes faecalis* (MTCC81164), *Bacillus licheniformis* (MTCC 8166), *Bacillus circulans* (MTCC 8167), *Pseudomonas aeruginosa* (MTCC 8163, 8165, 7812, 7814, 7815 and 7816), *Microbacterium* (G35-I), *B. subtilis* (R38-I), *P. fluorescens* (L490-II). This is the first work involving the crude oil contaminated soils of Indian subcontinent for their bioremediation. A bacterial consortium of isolates *Microbacterium*, *B. subtilis*, *P. fluorescens*, *B. licheniformis*, *P. aeruginosa* and *B. circulans* was found to be effective in bioremediation as it could reduce contaminat crude oil from 20% to 5.3% in 180 days. Bioremediated soil had more nitrogen ($313.41 \text{ kg} \cdot \text{ha}^{-1}$) as compared to normal soil ($242.31 \text{ kg} \cdot \text{ha}^{-1}$). However, there was depletion of phosphorus and potash. Rice cultivated in bioremediated soil without the application of fertilizers and organic manure yielded more as compared to the control. On the other hand, leguminous plants failed to grow in bioremediated soil.

Technology transfer to Industry: The bacterial consortium comprising of *Microbacterium* (G35-I), *B. subtilis* (R38-I), *P. fluorescens* (L490-II), *B. licheniformis* (MTCC 8166), *P. aeruginosa* (MTCC 8165) and *B. circulans* (MTCC 8167) was handed over to the Oil and Natural Gas Corporation, India.

(b) Biosurfactant

Five strains of *P. aeruginosa* isolated from the crude oil contaminated soils of Assam were found to produce biosurfactant. Bacterial biosurfactants were stable at pH 2-11 and temperature

up to 100°C. The requirement of bacterial biosurfactants for the critical micelle concentration was found to be much lesser as compared to commercial surfactants sodium dodecyle sulphate.

Biosurfactants produced by the bacterial strains exhibited excellent surface properties and remained stable while exposed to extreme conditions like high temperature, pH, salinity and metal ion concentration. The stability of biosurfactants in higher dilutions (CMD⁻¹ and CMD⁻²) further confirmed their intact surface properties. The isolated biosurfactants were of glycolipid-rhamnolipid nature; predominant dirhamnolipids over mono-rhamnolipids. The biosurfactants were efficient within their CMCs in solubilizing PAHs and thereby could remove the crude oil from the contaminated sand. This effected recovery of residual crude oil from the petroleum sludge.

The petroleum biotechnology work comprising of bioremediation and biosurfactant has enabled to publish 10 research paper, 02 book chapters and 01 book [Dr Bolin Kumar Konwar (2015). Prospects of Microbe and medicinal plant resources (Ed), Educationist Press, a Divn of Write and Print Pub, New Delhi-110015, ISBN No. 978-93-84649-23-4].

Biopolymer

Biopolymers possessed high degree of thermal as well as melting stability. Three different PHA producing bacterial isolates BPC1, BPC2 (*Pseudomonas aeruginosa*) and BP2 (*Bacillus circulans*) were recovered from the crude oil contaminated soil site of Assam. The FTIR, GCMS and ¹H and ¹³C NMR characterization lead to identification of the biopolymers to be poly (3-hydroxyvalerate) co-(5-hydroxydecanoate) (P-3HV-5-HDE); poly-3-hydroxybutyrate-co-3-hydroxyvalerate (P-3HB-3HV); and poly-3-hydroxyvalerate-co-5-hydroxydecanoate-co-3-hydroxyoctadecenoate (P-3HV-5HDE-3HODE). Molecular weight of the biopolymers is in the range of 5.6 X 10³ - 4.2 X 10⁴ Da and the polydispersity index bears a narrow value in the range of 1.05 - 1.21. Large sized crystalline biopolymers possessed high degree of thermal as well as melting stability with luminescence property. The biopolymers are biodegradable when exposed to microbial action.

The research work enabled us to publish 39 papers.

Bio-nanocomposites

PHA of *B. circulans* MTCC8167 is useful enhancing the stabilization of colloidal solution of SNP. Incorporating the metal oxide nanoparticles with biopolymer, the intensity of the emission peak could be increased. The resulting nanocomposites could be used for further application as sensors. A selective and sensitive PHA/AuNPs/HRP/ITO biosensor-based nanocomposite probe is developed for direct determination of artemisinin in bulk and spiked human serum. The proposed method has distinct advantage over other existing methods regarding sensitivity, selectivity, time saving and minimum detectability.

Two different types of nanoparticles such as iron oxide nanocrystal (IONRL) and silver nanoparticles (SNPRL) were synthesized in the presence of biosurfactant of the bacterial strain OBP1 and characterized. The SNPRL was found to stable up to 31 days and protected the silver nanoparticles from NaCl up to a concentration of 60 mg.ml⁻¹. Both IONRL and SNPRL nanocomposites exhibited considerable antibacterial properties against a wide range of bacterial strains. Biosurfactant was found to be highly efficient in nucleophilic addition reactions of 6-amino-1, 3-dimethyl pyrimidine-2, 4 (1H, 3H)-dione and 6[(dimethyl amino) methylene amino]-1, 3-dimethylpyrimidine-2, 4(1H, 3H)-dione with aldehydes in water at room temperature to give higher yield of products.

We could publish 09 research papers, 02 book chapters and 01 book from the works.

Biofuel

High biomass yield, attractive biochemical profile and high energy content in the microalgal strains namely *Chlorella* spp. KJ499988, *Scenedesmus* spp. KF279644 and *Parachlorella kessleri* KF163441 offers strong candidature as bioenergy feedstocks. Culture of *P. kessleri* KF163441 in representative water samples from PMCS suggested the practicability of mass culture of *P. kessleri* in permanently inundated water bodies which are otherwise considered as wastelands. *Chlorella* spp. KJ499988 biomass could be used as feedstock for bio and thermochemical conversions, whereas the deoiled cake for thermochemical conversion. The fuel properties of microalgal biodiesel such as density, calorific value and cetane number were within ASTM ranges. *P. kessleri* KF163441 deoiled cake could be directly used as a feedstock for bio-oil production. The microalgal bio-oil offers prospective applicability as a bioactive agent besides being an increasingly attractive fuel option. Biodiesel from yeast was superior to microalgal biodiesel on calorific value and cetane number.

The works enabled publication of 09 research papers and 03 book chapters.

Metagenomics

(a) Lipase gene

The metagenomic (mg) library was constructed into pET-32a lipase gene (891 nucleotides). The nucleotide sequence of lipase coding on deposition in NCBI GeneBank the accession No. KF743145. The lipase gene of mg origin possessed overexpression in the presence of 0.5 mM. The size of recombinant protein, fused with N- terminal His- tag, was ~40 kDa which includes the insert sequence encoding 296 amino acids (33867.4 Da) and pET-32a vector backbone sequence contributing 55 amino acids (6988.52 Da). Biochemical characterization of the purified lipase enzyme showed the required concentration of $1\mu\text{g ml}^{-1}$ for maximum enzyme activity in the presence of 1% tributyrin. The enzyme kinetics revealed V_{max} and K_m values for the enzyme catalyzed reaction to be 227 U/mg and 0.0806 mg/ml, respectively. The optimum pH and temperature for maximum enzyme activity was 7.5 and 37°C, respectively. The metal ions Ca^{2+} , Mn^{2+} , after 30 days of storage at 4 °C.

(b) Alkane hydrolase (Alk B) gene

The mgDNA-derived AlkB gene (~1200 bp) ligated into the pET-32a expression vector and transferred to *E. coli* BL21 (DE3). The nucleotide sequence of the gene was confirmed with the NCBI BLAST similarity search and deposited sequence with the accession No. KT896535. The culture of the recombinant *E. coli* BL21 (DE3) cells confirmed the production of AlkB protein and the same possessed the size ~47 kDa. The enzyme could degrade diesel, as confirmed by GC finger-print profile. The phylogenetic and the nucleotide compositional analysis revealed the mgAlkane hydroxylase gene belonging to *P. aeruginosa* root as the gene pool might have been transferred via horizontal gene transfer. *In silico* amino acid sequence analyses revealed the molecular weight of the enzyme to be ~45.273 kDa which is consistent with the data from the SDS PAGE and GPC. Molecular docking simulation studies revealed the protein to be able to interact with n-alkanes i.e. heptadecane (C-17), hexadecane (C-16), nonadecane (C-19), pentadecane (C-15) and octadecane (C-18) i.e, carbon atoms C-15 to C-19. Bioinformatics soft-wares were extensively used to study and establish various domain and other associated parameters of the enzyme.

(c) Cellulose gene

The cellulase gene from goat rumen mgDNA revealed the expression of cellulolytic activity in CMC (1%) agar medium. Sequencing revealed the cellulase gene to be of 1,501 bp containing ORF of 1,122 bp. The sequence was deposited in the NCBI GenBank under the accession No.r KX226390. The size of the expressed protein is ~45 kDa. The protein sequence

has 373 amino acids. The BLASTp analysis of amino acid sequence revealed 96% sequence homology with the cellulase enzyme of the uncultured bacterium (accession no. AFJ05146). The enzyme belongs to the glycosyl hydrolase family 5 (GH5). The highest specific activity (17.74 U mg⁻¹) was obtained when CMC (1%) was used as the substrate. The optimum temperature and pH for the maximum enzyme activity of the cellulase enzyme was 45°C and 6.0, respectively. Ca²⁺ and Fe²⁺ ions enhanced the enzyme activity, whereas Ni²⁺, Mg²⁺, Co²⁺, Zn²⁺ and Cu²⁺ inhibited the activity.

The stated works have enabled us to publish 32 research papers, 01 book chapters and 01 Book [Prof B K Konwar and Dr. Kalpana Sagar (2017). Lipase: An Industrial Enzyme through Metagenomics, Apple Academic Press, Inc., New Jersey, USA and Ontario, Canada].

Acted as Resource Person in

1. DBT sponsored popular lecture series for college and university students, DBT sponsored national training and demonstration on tissue culture and genetic engineering
2. ICAR sponsored national training and demonstration on crop germplasm conservation and crop breeding.
3. Summer Institute of Central School, College and University teachers
4. TRA sponsored training of Sr. and Jr. Executives of the tea industry, field management courses, Government officials of Nagaland in tea cultivation and processing.
5. Refreshers/training courses of Assam University, NEHU, Tezpur University, Dibrugarh University, Defense Research Laboratory, Assam Agril. University, Regional Research Laboratory etc.

Acted as Expert/Referee/Member in National bodies/research projects/journals

Expert member in:

Assessment Committee, All India Co-ordinated project on *Albizia* species operated by the Indian Forest Research Institute

Project Evaluator, IGOU, New Delhi

Central Muga-Eri Research & Training Institute, Central Silk Board, Ministry of Textile.

Nominated by the Director General, ICAR, New Delhi to the DPC for the promotion of ARS scientists

Selection Committees in CSIR-NEIST, Jorhat; Rajiv Gandhi University, Itanagar; Dibrugarh University, Assam; Mizoram University (Central), Aizwal; Tripura University (Central), Agartala; Manipur University, Imphal; Tezpur University (Central), Napaam

Expert evaluator of Dibrugarh University, Gauhati University, Agric. University of Raipur and Calcutta University, Jadavpur University, WB University of Technology.

Editor/Referee/Reviewer of

Indian Journal of Genetics and Plant Breeding, IARI, New Delhi;

Executive Editor, *International J. of Crop Science*, India (2007-08);

Reviewer of *J of Genet & Plant Breed*,

Afr. J. of Env't. Sci. & Tech.

Colloids and Surfaces B: Biointerfaces,

J. of Hazard. Mat. and

Chemosphere.

Project Reviewer

1. King Fahd University of Petroleum and Minerals from 2016 onwards
2. University of Tunkur Abdul Rahman, Malaysia
3. Panel Expert of the session ‘Rural Future: Education-The Classroom in Wild’, Eastern Himalayan Naturenomics™ Forum, 2-3 November 2017, organized by Balipara Foundation, Assam, India at Guwahati.
4. Panel Expert of the session ‘Rural Future: Green Energy & Technology- from Water to the Sun’, Eastern Himalayan Naturenomics™ Forum, 2-3 November 2017, organized by Balipara Foundation, Assam, India at Guwahati.

Organizing Secretary/Member of

- Organizing Com, National Seminar on ‘Hydrocarbon degrading microbes”, Dec 2003 (Secy).
- Organizing Com. of the National Workshop on ‘Science & Technology for regional development: case for North east India’, 2004, IITG, Assam.
- Organizing Com. DNA double helix Golden Jubilee National Seminar-cum-Exhibition, Tezpur University, Napaam, Octobe, 2003 (Org Secy)
- National Organizing Committee, First National Symposium on “Muga Silkworm Biochem., Mol. Biol. & Biotech. to improve silk production”, RRL, Jorhat, Nov., 2004.
- Organizing Com. National Seminar on “Medicinal Plant and Microbe Diversity and their Pharmaceuticals, Dept of Mol Biol & Biotech, Tezpur University (Secretary)

Chairman in

- Selection Committees in CSIR-NEIST (RRL), Jorhat, Assam
- National Research Institute on Rain Forests and Deciduous Trees, ICFR, Jorhat, Assam
- DRL (DRDO), Tezpur, Assam
- Session IV of NATPAS, School of Sci & Tech, Tezpur Univ, Napaam, Assam, 2011 and 2013,.
- Research Advisory Committee, 2014-17, Central Muga and Eri Research & Training Institute, Central Silk Board, Ministry of Textile, Lahdoigarh, Jorhat, Assam.
- Co-Chairman, ADNAT “Bioverse”, IITG, TU, CMERTI and BTC, Jnauary to March, 2018

Member in

- Member 2011-13, CMERTI, CSB, Ministry of Textile, Lahdoigarh, Jorhat, Assam.
- Nomination Council, Infosis Awards.
- Board of Governors, NIT Nagaland, Dimapur
- Research Council of CSIR-North East Institute of Science and Technology, Jorhat 2014 – 2016
- Executive Council, Central University of Jharkhand, Ranchi 2 terms: 2013-2015, 2015-2017.
- National Research Centre on Yak, ICAR, Dirang, Arunachal Pradesh;
- Board of PG Studies of North East Hill University, Shillong;
- Planning Board, Rajiv Gandhi University (Central), Itanagar, Arunachal Pradesh.
- Planning Board, Tezpur University (Central), Napaam, Tezpur, Assam
- Advisory Board Member, Institute of Biotech. and Allied Sci. Training, Sikar, Rajasthan

Administrative Experience

1. Member, Board of Studies, Faculty of Agriculture, Assam Agricultural University, Jorhat from August 1994 to April, 1995.
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2. Incharge, Botany Department, Tocklai Experimental Station, TRA, Jorhat from Dec.,1997 to August 2000 and Head from Sept., 2000 to March, 2002.
 3. Member, Scientific Advisory Committee, and Agricultural Sub-Committee, Tocklai Expt. Station, TRA, Jorhat for 4 years.
 4. Head, Deptt, of Mol. Biology & Biotechnology; Head and Secretary, Executive Committee, Centre for Petroleum Biotechnology, Tezpur University (Central), Napaam, Tezpur from April 2002 to 2008.
 5. Chairman, BoS, DRC, T&P Cell, QCC, Q Allotment Com, Training and Placement Committee, Univ Campus Beautification Committee, Grievance Redressal Committee, University Quality Committee (Goods and Supplies), Construction Monitoring Committee, Tezpur University, Napaam, Tezpur, Assam.
 6. Member, Research Committee, Insurance Investment Committee, Purchase Improvement Committee, Security Committee, Review Committee for Act, Statutes and Ordnances, Space Allotment Committee, Library Committee, Panning and Academic Committee, Academic Council, Board of Management, Tezpur University, Napaam.
 7. Enquiry Officer and Presenting Officer at Tocklai Expt Station and also at Tezpur University on more than 7 cases.
 8. Coordinator cum Director, IQAC (NAAC), TU, Napaam (May 2005-2010);
 9. I/C Head and Head, Dept of Botany & Biotechnology, Tocklai Expt. Station, TRA, Jorhat, Assam from 1997 – 2002
 10. Head, Dept of Mol Biol & Biotech, Tezpur University, Napaam 2 terms from 2002-2008.
 11. Dean, School of Science & Technology, TU, Napaam, Tezpur-784028, Assam from 2008-11.
 12. Remained In-charge VC Office 3 times at Tezpur University.
 13. Vice Chancellor, Nagaland University since 08.09.2011 to 07.09.2016.
 14. Chief Guest in Central Lachit Divas, Bihapuria, Lakhimpur, 24th November 2017.
 15. Inaugurated Workshop cum Training Program on Ribosome and translation Technique, DBT sponsored, organized by Dept of Mol Biol & Bitchnology, 25-26th Nov. 2017.
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Experience of working with NAAC

01. Since May 2005, worked as the Coordinator and Director of IQAC (NAAC), Tezpur University, Napaam.
02. Organized the NAAC Peer Teams visit to Tezpur University for reaccreditation in 2010.
03. Chaired a Training Programme at NAAC Head Office, Banlgalore in 2012.
04. Chairman of NAAC Peer Team visit to Moridhal College, Lakhimpur, Assam in 2014.
05. Chairman of NAAC Peer Team visit to Kekri College, Rajasthan in 2015.

Industrial Research

1. Tocklai Experimental Station, Tea Research Association, Jorhat is the premier organization carrying out research exclusively on the Indian Tea Industry. I had the experience of working as a senior scientist and Head of the Botany Deptt. of the Organization for 7 years.
2. In Tezpur University, Napaam, Tezpur, Assam Headed the ONGC sponsored Centre for Petroleum Biotechnology for 8 years and establishment of the Centre for Petroleum Biotechnology as a permanent from 2010 with ONGC and Tezpur University funding.
3. Secured an industry (ONGC) project as the PI with Rs 70.03 lakh in 2009 for five years.

Syllabus prepared

1. Agricultural Biotechnology at Assam Agril. University, Jorhat, Assam
2. Molecular Biology & Biotechnology in Tezpur University, Tezpur, Assam
3. *Part of Food Processing & Technology (FPT): Microbiology, Food Microbiology and Food Biotechnology (for establishing the Dept of FPT in TU, Tezpur)*
4. Nanotechnology course (in part)
5. Five year Integrated Biotechnology programme course syllabus.
6. Preparation M Sc Mol Biol & Biotech syllabus in line with DBT national syllabus.
7. M Sc in Forest Sciences, Nagaland University, Lumami
8. M Sc in Environment Sciences, Nagaland University, Lumami
9. Biotechnology, Nagaland University, Lumami
10. Centre for Earth Science, Nagaland University, Lumami
11. Centre of Advance Biosciences, Nagaland University, Lumami

Courses taught

Genetics and Cytogenetics, Cytology, Plant Breeding (General and Advanced-Ph D), Genetic Engineering (M Sc and Ph D), Plant Tissue and Cell Culture, Plant Biotechnology (M Sc and Ph D), Management and Legal Issues in Biotechnology (IPR and Patenting), Nanotechnology, Bioelectronics (Biology part), *Food Microbiology, Food Biotechnology (teaching since the establishment of the Dept of FPT in TU in 2005)*. Basic Biology and Environment Biotechnology.

Experience in Campus Development and Laboratory building layouts

Tocklai Expt. Station, TRA, Jorhat – Designed the floor area and labs in the new Botany & Biotechnology (1,600 sq m) building, shifted the entire 90 year old dept to the new building in 1999.

Tezpur University, Tezpur, Assam – The Dept of Mol Biol & Biotech was shifted to the allotted administrative building from a temporary shed in 2004. Big halls were modified as per requirement of laboratories with glass walls. An exclusive new Biotechnology building was constructed in 2009-10 under my supervision and the dept was shifted into. Procured state-of-the-art equipment SEM, DNA sequencer, Ultra Centrifuge, Fermenter, Image Analyzer etc.

Chairman of Construction Committee; Quality Committee; Training and Placement; Campus Development Committee of Tezpur University; Supervision of Roads and their widening, Bus stands, Parks and Flower gardens, Health Centre, Campus housing construction. Tree plantations were executed and supervised in Tezpur University and Nagaland University (Central).

Organized the Branch offices of State Bank of India and Punjab National Bank in Tezpur University campus, also 2 ATMs; instrumental in employing Lady and more doctors and nurses and procurement of ambulances for students and staffs in Tezpur University also in Nagaland University.

Supervision of Students/Scholars

Completed:	M. Sc. research project supervision	- 40 nos.
	Ph D research	- 14

Patents filed: 03

Ph D Scholars and title of thesis (completed)

01. Dr. Dhiren Chowdhury (2007): Floral biology, karyotype, biochemical and genomic study of *Etlingera species* – A medicinal and aromatic plant.
02. D. Ranjan Kandali (2007): Structural elucidation of major bioactive compounds and genome analysis of *Spondias pinnata* Kurz and *Streblus asper* Lour.
03. Dr. Naba Bordoloi (2007): Biochemical and molecular characterization of certain bacteria for application in bioremediation of petroleum contaminated soil.
04. Dr. Jitu Buragohain (2008): Assessment on biodiversity of medicinal plants: cytological, biochemical and molecular characterization of a few major plants.
05. Dr. Khanindra Ratna Barman (2010): Biochemical and molecular genetic assessment of yeast strains used by certain tribal communities of Assam in alcohol production.
06. Dr. Jyoti Prasad Saikia (2011): Molecular and Biochemical characterization of four Araceae species.
07. Dr. Pinkee Phukan (2013): Biochemical and molecular genetic assessment of bacterial biopolymer.
08. Dr. Pranjal Bharali (2015): Bioremediation of Crude oil contaminated soil
09. Dr. Anggana Roy (2015): Phytopharmaceuticals for Hair Growth
10. Dr. Mayur Mousum Phukon (2015): Biomass and biofuel characterization of some microalgal species of Assam, India
11. Dr. Kalpana Sagar (2015): Cloning and expression of a lipase coding gene from a soil metagenomic library.
12. Dr. Krishna Gogoi (2015): Medicinal compound isolation and diversified use of *Musa balbisiana*
13. Dr. Yasir Basir (2016): Metagenomics in the production of industrially important cellulase.
14. Dr. Salam Pradeep Singh (2016): Metagenomics through bioinformatics tools.

Ph D Scholars ongoing

01. Ms. Shreya Das ‘Microbial infections of the uterus’
02. Mr. Kumar Kitartha Kausik ‘Probiotics and enzymes of duck intestinal microflora’
03. Ms. Mimi Adhikari ‘Permanent and Quality glu from shell-less snail’

DNA/Gene sequences deposited in Gene banks (11)

01. GenBank: JQ796859.1
Pseudomonas aeruginosa strain BP C1 16S ribosomal RNA gene, partial sequence
02. GenBank: JQ866912.1
Pseudomonas aeruginosa strain BP C2 16S ribosomal RNA gene, partial sequence
03. GenBank: JX843420
Pseudomonas aeruginosa strain BBK9 16S ribosomal RNA gene
04. GenBank: JX843421
Pseudomonas aeruginosa strain JBK7 16S ribosomal RNA gene
05. GenBank: JX843422
Pseudomonas aeruginosa strain JBK1 16S ribosomal RNA gene
06. GenBank: JX843423
Pseudomonas aeruginosa strain BBK1 16S ribosomal RNA gene
07. GenBank: KF743145.1

- Uncultured bacterium clone KBS-plip1 lipase/esterase protein gene, complete cds
08. GenBank: KF279644.1
Scenedesmus sp. MPBK-2 internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence
09. GenBank: KF163441.1
Parachlorella kessleri strain MMPBKK-1 5.8S ribosomal RNA gene, partial sequence; internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence
10. GenBank: KF514428.1 Bacterium KBS-107 16S ribosomal RNA gene, partial sequence
11. GenBank: KX226390.1 (Source: uncultured bacterium), Definition Uncultured bacterium cellulase gene, complete cds., Accession KX226390; Version KX226390.1

Awards and Recognitions

- (i) LPL Stipend Exam. 2nd topper of Sibsagar dist, 1969.
- (ii) Towkok TE, Jayashree Tea Co. monthly stipend on HSLC result., 1975
- (iii) Selected for Post Metric National/ICAR/State Merit scholarship, 1975.
- (iv) Selected for ITA/TBI scholarship, 1978.
- (v) Gold medal in B Sc (Argi) and Distinction (above 80% marks) in M Sc Agri., 1981.
- (vi) Merit Grade I Scholarship from AAU, Jorhat for M Sc (Agri) degree, 1982
- (vii) State Overseas Scholarship, Govt of India to Imperial College, London, UK, 1988.
- (viii) St Gregory Fund support for an International Conference in Amsterdam, Netherlands, 1990
- (ix) Citizens recognition of Cheraideo Sub-division, Sibsagar dist, Assam, 1993.
- (x) Marquis World's Who's Who young scientist, 1998
- (xi) Pioneers of Genomics Education, Class of 2010 for outstanding contribution to the field of Genomics Education, Ocimum, Biosolutions and Gene Logics
- (xii) Dept. of Biotechnology, Govt of India: Biotechnology Associate ship (Foreign Country).
- (xiii) Distinguished Teacher Award, 2012 -2013 by DMSBM.
- (xiv) Sadbhavana Gold Medal Award 2013 by GEPRA
- (xv) Life Time Achievement Award – 2014, International Conference TIAS-2014, Society of Recent Development in Agriculture, 17-19th Feb, 2015

Declaration

I declare that the information presented above is true to the best of my knowledge and belief.

Place: Tezpur University, Napaam
 Date : 06.06.2018

Prof B K Konwar

Nagaland University (Central) as Vice Chancellor for a full term of 5 years

(a) Academics

01. 82% faculty and 96% staff positions are filled up. Student strength increased from 1240 (in 2012) to 2500 in 2016; and No. of affiliated colleges from 54 to 66.
02. Five new Departments, Anthropology, Psychology, Mathematics, Physics and Linguistics were established in 2012-13; under 12th 5 year plan (UGC approved) depts Forest Sci and Environmental

Sci; 2 Centres: South-East Asian Studies and Naga Tribal Language Studies with total 15 faculty positions are started from 2016.

03. Depts are running externally funded research projects (GBPIHED, DST, DBT, CSIR, UGC, MHRD, ICAR, ICHR, MOEF, and NUEPA) with the financial outlay of *ca.* Rs. 22.0 crore. Prior to 2011, there were only a limited no of research projects.
04. Two B. Voc programs (Nursery Manag Tech & Plant Propag Techniques) and community college program (Repair & Maintenance of Electronic-Electrical equipment) are running. Univ. also offers Community related training programs on (i) Basic computing, (ii) Bee keeping, (iii) Mushroom cultivation, (iv) Soya milk preparation, (v) Piggery, (vi) Poultry farming & (v) compost making.
05. Dept of Geology obtained DST-FIST level I program in 2013-14; Dept of Botany secured SAP II from UGC in 2015.
06. Introduced successfully semester system in all affiliated colleges since 2012-13.
07. Examination, evaluation and timely result declaration of affiliated colleges (UG) has been refined and improved with online-sofwares. Prior to 2011, it was a very difficult proposition for the university.
08. Regular faculty, official and staff improvement since 2011 through refresher/orientation courses, seminars/workshops and various trainings in and outside the State.
09. Sophisticated equipments like PCR, GC-MS, High Speed Refrigerated Centrifuge, Gel Doc system, XRD, FTIR, AAS, CH N Analyser etc have been procured for teaching and research.
10. Framed guidelines for 'Research Fellows' and 'Externally Funded Research Projects'
11. Started five new academic depts of Linguistics, Mathematics, Anthropology, Psychology and Physics
12. NU Research Journal was revived and published from 2013; started M. Ed program in one of the affiliated colleges from 2014.
13. All posts of Krishi Vigyan Kendra (KVK) at Lumami (Zunheboto) were filled up in 2013.
14. Signed MoU with University of Hyderabad; CSIR-NEIST, Jorhat; ICAR and Mithun Breeding Station, Jhornapani for taking up collaborative research.
15. The first Farmers' Fare (Naga Kheti Mela) was organized at SASRD in 2013 and continued; adopted 12 villages at Lumami and Medziphema for trainings and demonstrations.
16. As per resolution of EC, two yearly Convocations (3rd and 4th) were held in 2013 and 2015; in the 3rd Shri Pranab Mukherjee, Hon'ble President and Visitor acted as the Chief Guest and in the 4th the Governor and Chief Rector.
17. Visited Chiang Mai University, Chiangmai, Thailand from 3rd to 6th May 2016 on invitation of Her Royal Highness Princes Mahachakri Sirindhorn to establish Academic Collaboration between Nagaland University and Chiang Mai University, The MoU was signed on 17th July 2016 in New Delhi (Hyderabad House) in the presence Honb'le Prime Minsters of India and Thailand.

(b) Infrastructure creation

- (01) Eight hostels for students (3 for boys and 5 for girls) and scholars; residential quarters 54 for faculty members, officers and staffs; 2 library buildings, new offices 5, new dept buildings 4 and modification 9, Office and Residential quarters for KVK; repaired 86 old (more than 35-40 years) quarters, constructed new retention walls and pucca roads *ca.* 20 km.
- (02) Augmentation of water supply with installation of 17 km long second pipeline along with water tanks. A dedicated power line to HQ campus was arranged from the state power dept at cost over Rs 2.0 crore. Procured and installed 250, 50 and 25 KVA Generators with extension of LT lines Enlarged and constructed 4 play grounds by cutting large hills.
- (03) Constructed Children Park, Landscaping and flower gardening at HQ: Lumami, Meriema and Medziphema campuses; Gymnasium and Shooting rage; Volley ball, badminton, basket ball courts; more than 20 galvanised approach roads; Instrumentation rooms in depts of Chemistry, Zoology, Botany, Physics, Anthropology and Mathematics; new Canteen buildings 4; enlargement of buildings of Sociology, Pol Sci, Economics, Tynidee dept, faculty common room.

- (04) Established Dr T. Ao Sports Complex, started the construction of Multi-Gymnasium Hall, Examination Building at the HQ. Installation of Bioinformatics lab with 2 Servers and 20 clients; 3 hostels, 7 dept buildings.
- (05) Procured and installed modern equipment worth Rs 4.0 crore for the depts for meaningful research.
- (06) Purchased 3 ambulances, 4 buses and 6 small vehicles.

(C) Administration

- 01. Nagaland University Ordinance is finalized and submitted for approval.
- 02. Appointed Pro VCs in Kohima (Meriema) and Medziphema (SASRD), created and appointed Dean (Res., Dev. & Consultancy) in 2013 to strengthen Research and Consultancy activities.
- 03. Faculty strength increased to 242 with new appointments/promotions against the sanctioned strength of 267. Almost all (95%) vacant posts of Officers and Staffs filled up. Prepared and implemented Service Rules for Non-Teaching Staff.
- 04. Formed (a) NU Alumni Association, (b) University-Village Coordination Committees for all campuses; (c) Day care centre; (d) Self Help Group to make quality food products, (e) 'Inspired Teachers' Forum Established, (f) Training and Placement Cell and conducted placement trainings by various organizations, (g) Innovators Club and organized several exhibitions by grass root innovators, and (h) NU Education Technology Cell.
- 05. Established Planning Cell; and made IQAC operational, University was reaccredited with 'B' grade in August 2014. University plans to establish: and (a) Kendriya Vidyalaya.