

ARUP JYOTI BORAH (CV)

Past Affiliation

Assistant Professor (Guest)
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Date of Birth: 14th October, 1988

PROFILE SUMMARY

Enthusiastic, dynamic with a positive can-do attitude academic professional. Proven success in strategy and curriculum development, event organizing and management. A compassionate person thrive to render service towards society upliftment and in reforming nature

EDUCATIONS

Year	Degree/ Certificates	Institute/ Board	Division
2018	PhD Center for Energy (Interdisciplinary Centre working closely with Dept. of Biotechnology)	Indian Institute of Technology Guwahati, India	First Class
2011	M. Sc	VIT University, Vellore, India	First Class
2020		Annamalai University (DDE),	First Class
2021		IGNOU, Delhi	Conti...
2011	PG Diploma 1. Intellectual property Rights (IPR)	Annamalai University of Distance Education, Chidambaram, India	First Class
2020	2. Sustainable rural development	NIRD & PR, Hyderabad(Ongoing)	First Conti
2009	B. Sc Biotechnology with Microbiology & Chemistry	M.S. Ramaiah College, Bangalore, India	First Class

OTHER CERTIFICATE COURSES from NPTEL & IIRS

Energy	<ul style="list-style-type: none"> Hydrogen Energy: Production, Storage, Transportation and Safety, IIT Bombay, 2022 Biomass conversion and biorefinery, IIT Guwahati, 2023
WasteManagement	<ul style="list-style-type: none"> Plastic Waste management, IIT Kharagpur, 2019 Electronic waste management- Issuesand challenges. IIT Kharagpur, 2018.
PatentCourse	<ul style="list-style-type: none"> Patent drafting for Beginners, IIT Madras, 2018. Patent Search for Engineers and Lawyers, IIT Kharagpur, 2018
GIS & RS	<ul style="list-style-type: none"> Remote Sensing and GIS for rural development, IIT Bombay, 2023 Hyperspectral remote sensing and its applications. IIRS Dehradun, 2019.
OutreachProgram	<ul style="list-style-type: none"> Introduction to Geographic informationsystems, IIT Roorkee, 2018

NB: *RA= result awaited, NA= Not applicable

TEACHING EXPERIENCES = 3 years

Assam Don Bosco University, Assam May2022-present	Assistant Professor (Grade 1), Department of Botany Highlights: Teaching, Service learning coordinator, Supervising Master Dissertations
Tezpur Central University Aug2020- May2022	Assistant professor (Guest), Department of molecular biology and Biotechnology Highlights: Teaching
NIT Arunachal Pradesh Aug2019 - Jul, 2020	Assistant Professor (Ad hoc), Department of Biotechnology Highlights: Teaching, lab set up, TEQIP Data Entry, Research Guidance to students

Courses taught in NIT Arunachal Pradesh	Courses taught in Tezpur University
BT 405: Molecular Biology (UG)	BI 435: Fermentation and Bioprocess Engineering (PG)
BT 405: Molecular Biology (Lab, UG)	BI 439: Fermentation and Bioprocess Engineering (Lab, PG)
BT 503: Enzyme Technology (UG)	BT 461: Bioprocess Engineering and Technology (PG)
BT 702: Fermentation technology (UG)	BT 473: Bioprocess Engineering and Technology (Lab, PG)
BT 702: Fermentation technology (LAB, UG)	Courses taught in Assam Don Bosco University
BT 602: Bio separation technology (UG)	Environmental biotechnology
BT 502: Bioinformatics (UG)	Molecular techniques, biochemical and bioinformatics
	Plant biotechnology and metabolism

ACADEMIC ACHIEVEMENT

2023	Receive Pre incubation grant under Northeast Entrepreneurship Development Programme (NEEDP), a joint initiative between the North Eastern Council and IIM Calcutta Innovation Park.
2022	Winner, Grass-root Innovator CATALYSETECH NE Chapter-2022, September. Organized by Atal Incubation Center-SELCO Foundation. Prize Money = 70000 (first phase)
2022	UK-India research collaboration as Subject Lead -Waste to Circular economy Indian Context sponsored by UK Research and Innovation and Energy and Bioproduct research Institute (EBRI).
2021	ISEES Young Scientist Award -2021 International Society for Energy, Environment and Sustainability.
2020	Winner, Idea exposition on Innovation in Agriculture and Sustainability organized by BIRAC regional Centre (BRIC) & IKP India.
2018	Cover page , Bioresource technology, Borah, Arup Jyoti, et al. "Mechanistic investigations in biobutanol synthesis via ultrasound-assisted ABE fermentation using mixed feedstock of invasive weeds." Bioresource technology 272 (2019): 389-397.
2017	Recipient of 7thNational Award or Technology Innovation , India Petrochemicals and Downstream Processing Industry, Ministry of Chemicals and fertilizers, Govt. of India.
2016	BEST Poster Award in International Conference on Current Trends in Biotechnology, organized by Biotech Research Society, India (BRSI).
2016	Best Oral Presenter Award in Asia Pacific congress on Catalysis, Institute of Chemical Technology, Mumbai, 2017
2014	National Eligibility Test (ICAR-NET) in Agriculture microbiology conducted by Agriculture Scientist Research Board (ASRB) and Indian Council of Agricultural Research (ICAR), New Delhi recognized jointly by UGC and CSIR, GOI. for
2013	Qualified North East State Level Eligibility Test under UGC, India. (NE-SLET), in Life Science
2011 & 2012	Graduate Aptitude Test in Engineering (GATE), Biotechnology a National Level Examination

RESEARCH INTEREST

- Biomass valorization to value added product [Biofuels (Bioethanol & Biobutanol), Biopolymer (PHB), Xylitol and 1,3 Propanediol etc.], Biopesticides (Silica nanoparticle synthesis)
- Microbial, enzyme and fermentation technology (focus on the development of sustainable bioprocesses and products)
- Secondary metabolite & Lignin extraction and its valorization
- Climate change, Circular Bioeconomy
- Bioassessment and supply chain management through geospatial technology

JOURNAL AFFILIATIONS

Reviewer, Bioresource Technology, Peer reviewed Journal, Elsevier
Reviewer, Process Biochemistry, Peer reviewed Journal, Elsevier
Reviewer, Ultrasonics Sonochemistry, Peer reviewed Journal, Elsevier

PROJECTS

As CO-PI	Designing of efficient solar powered weaving technologies for textile industry upgradation in northeast region.	MSME, India	23.56 Lakhs	2021 Proposed
COLLABORATION PROJECT WITH PROF. D.C BARUAH	1. Development of a Smart Platform for promotion of Renewable Energy in Assam 2. Valorization of Solid waste into circular economy.	Dept of Energy, Tezpur University		Ongoing
SPONSORED PROJECT	An IoT embedded Agri-Rover for precision and sustainable Agriculture	Selco foundation		Ongoing
PREINCUBATION GRANT	An IOT enable smart device for digital eye strain	North east council & IIM Kolkata		Ongoing

MASTER THESIS GUIDED AND YEAR OF COMPLETION

1. Zainab Fatima (DU2021MSC0312)	Comparative analysis of different lignocellulosic plant biomass for paper pulp making	2023
2. Giftson Kholar (DU2021MSC0145)	Comparative analysis of food adjuvant “Khar” obtained from Banana, Bamboo, Papaya and Sesame.	2023
3. Jaksil M Sangma (DU2021MSC0148)	Phytochemical estimation of <i>terminalia arjuna</i>, <i>Citrus x sinensis</i>, <i>Clitoria ternateae</i>, <i>Limonia acidissima</i>	2023
4. Mongera J.D Sangma (DU2021MSC0158)	Biochemical estimation of the selected local rice varieties (<i>oryza sativa</i>) of Garo hills, Meghalaya India.	2023
5. Karan Lyngdoh (DU2021MSC0221)	Studying the effect of storage and shelf life on the physiological, microbiological and antioxidant properties of alcoholic beverages.	2023
6. Srijan Saikia (DU2021MSC0310)	Identification and characterization of suberin pathway genes in <i>camellia sinensis</i>: a study pertaining to screening of drought tolerant clones	2023
7. Parinita Das (DU2021MSC0326)	Phytochemical analysis and antibacterial activity of extracted essential oil from <i>Vitex negundo</i>, <i>Hibiscus rosa sinensis</i>, <i>Ipomea Cairia</i>	2023
8. Dilje Krebea Marak (DU2021MSC0094)	Study of phytochemical screening and antioxidant activities of three new silkworm host plants	2023
9. Ronaldo Rabha (DU2021MSC0348)	Assessment of multiple invasive grasses as potential feedstock for bioenergy production	2023
As Co-Supervisor Tezpur Central University		
10. Prabar Das (ENE20021)	Sustainable Management of Municipal Solid Waste: A Perspective Research Study for Tezpur Municipality Board	2022

RESEARCH WORKS, EMPLOYMENT AND INTERNSHIP

<p>IIT Guwahati Centre for Energy, India Jan 2013- Nov 2018</p>	<p>PhD Scholar (Full time) Thesis Work Title 1: Synthesis of alcoholic biofuels from multiple invasive weeds: process design, optimization and intensification Supervisor: Prof. V.S Moholkar (Centre for Energy) and Prof. Arun Goyal (Department of Biotechnology) Highlights: <ul style="list-style-type: none"> • Biochemical Assessment • Pretreatment studies and its optimizations delignification and enzymatic hydrolysis, kinetics and structure elucidation • Comparative studies in sonication with conventional process. • Fermentation technology (SHF, SSF, SHCF) • Fitting of fermentation profiles to biokinetic model Genetic Algorithm Additional Research Experience Title 2: Ultrasound assisted enzymatic desulfurization of liquid fuels using horseradish peroxidase. Supervisor: Prof. V.S. Moholkar and Prof. Pranab Goswami (Department of Biotechnology) <ul style="list-style-type: none"> • Desulfurization of liquid fuel using dibenzothiophene • Mechanistic insight into ultrasound-assisted enzymatic treatment • Conformational changes in 2° enzyme structure induced by sonication. Title 3: Ultrasound-assisted extraction and characterization of biopolymer polyhydroxybutyrate (PHB) from invasive weeds. Supervisor: Prof. V.S. Moholkar <ul style="list-style-type: none"> • Synthesis of PHB polymer from <i>P. hysterophorus</i> and <i>E. crassipes</i> • Fermentation by <i>Ralstonia eutropha</i>. • Characterization of synthesized polymer Title 4: Dioxane-based extraction process for production of high quality lignin. Supervisor: Prof. V.S. Moholkar <ul style="list-style-type: none"> • Lignin extraction from Debarked bamboo waste • Pyrolytic oil and char were also obtained through pyrolysis </p>
	<p>Title 5: Cytometry based correlation of Genomic content with phenotypic characters of plant cells. Supervisor: Prof. V.S. Moholkar and Prof. Latha Rangan (Dept of Biotech) <ul style="list-style-type: none"> • Standardizing the protocol for genome size estimation • Relationship between genome size and cell size • Correlation between stomata and cellulose content </p>
<p>Nesac, Shillong Mar-May-2014</p>	<p>As internee Title 6: Study the geographic distribution of multiple invasive weeds in Assam. Supervisor: Dr. Suchitra Devi <ul style="list-style-type: none"> • Digitization, layer creations and buffer analysis, geo-referencing, supervised and unsupervised classification • QGIS, ERDAS, MAXENT modeling </p>

IIT Guwahati <i>Centre for Energy</i> <i>Sep – Dec 2012</i>	As Junior Research Fellow Title: A novel energy efficient hydrodynamic cavitation technique for extraction of oil from micro-algae for bio-diesel production Supervisor: Prof. V.V. Goud Highlights: <ul style="list-style-type: none"> • Microalgal cultivation and maintenance (Scenedesmus quadricauda, Cholera) • Physical and media optimization • Oil extraction and bioethanol production of spent biomass.
IIT Guwahati <i>Department of Biotechnology,</i> <i>India</i> <i>Dec – Aug 2012</i>	As Junior Research Fellow Title: Cytoskeletal organization and migration potential of mesenchymal stem cell during different stages of differentiation Supervisor: Prof. B.G Jaganathan (Department of Biotechnology) Highlights: <ul style="list-style-type: none"> • Stem cell culture and differentiation, • RNA & DNA isolation, Cloning
CMRI, CSIR Lab <i>Env Division</i> <i>Digwadih, Dhanbad,</i> <i>India</i> <i>Jan -May, 2011</i>	Master Dissertation Work Title: Synthesis of silica nanoparticles from invasive biomass its optimization, characterization and application in agricultural pest control Supervisor: Prof. L.C Ram Highlights: <ul style="list-style-type: none"> • Synthesis of silica from six invasive biomasses from modified Sol-gel method • Method optimization and silica characterization • Silica application to control agricultural pest
Tezpur University <i>Dept of Energy</i> <i>Napaam, Tezpur,</i> <i>India May - July, 2010</i>	Summer intern Title: Production of biodiesel from <i>Kayea assamica</i>. Supervisor: Prof. Rupam Katak Highlights: <ul style="list-style-type: none"> • Synthesis of bio-oil from <i>kayea assamica</i> seed mixture by hexane solvent extraction • Optimization of Trans esterification process for better biodiesel properties. • Characterization of biodiesel properties

ADMINISTRATIVE AND MANAGEMENT EXPERIENCES = 3 years

STUDENT CONVENER: RESEARCH CONCLAVE 2017 (16-19 MAR 2017)

GENERAL SECRETARY, STUDENTS' ACADEMIC BOARD, IIT Guwahati JULY 2016- JULY 2017

CONVENER: RESEARCH CONCLAVE 2015 (2nd Edition) MAR 16-19, 2016

DOCTORAL REPRESENTATIVE: STUDENTS' ACADEMIC BOARD IIT Guwahati MAY 2015 –MAY 2016

FOUNDER CONVENER: RESEARCH CONCLAVE 2015 (1st Edition) MAR 12-15, 2015

CPPC STUDENT EXECUTIVE: CENTRE FOR ENERGY, IIT Guwahati OCT 2014-APR 2015

LIST OF PUBLICATIONS (Citation till date =231)

Published in Peer Reviewed International Journals

Arup Jyoti Borah, P. K Dikshit, M Doloi V.S. Moholkar (2021)	Extraction and Characterization of Lignin from Waste Invasive Weeds with Dioxane-based Process	ISSN 2190-6823 [EMID:6cb3d3714652bf95]	Biomass Conversion and Biorefinery (IF =4.97)
Arup Jyoti Borah, R. Malani, A. Goyal, V.S. Moholkar (2021)	Kinetic modeling of dilute acid hydrolysis of various weedy invasive species as feedstock for biofuel production. (manuscript submitted)	communicated	I & EC research (IF=3.721)
Arup Jyoti Borah, K. Roy, A. Goyal, V.S. Moholkar. (2019).	Mechanistic investigations in biobutanol synthesis via ultrasound-assisted abe fermentation using mixed feedstock of invasive weeds.	ISSN 0960-8524 272, 389-397	Bioresource Technology (IF = 9.62)
M Saha, P B Saynik, Arup Jyoti Borah, R Malani, P Arya, Shivangi, VS Moholkar (2019)	<i>Dioxane-based extraction process for production of high-quality lignin</i>	ISSN 2589-014X 5, 206-211	Bioresource Technology reports.(IF= 4.41)
Arup Jyoti Borah, M. Agarwal, A. Goyal, V.S. Moholkar. (2019)	Physical insights ofultrasound-assisted ethanol production from composite feedstock of invasive weeds	ISSN 1350-4177 51, 378-385	Ultrasonics Sonochemistry (IF= 7.49)
S Pradhan, Arup Jyoti Borah, M Agarwal, M Poudyal, A Goyal, VS Moholkar. (2017)	<i>Microbial production, ultrasound-assisted extraction and characterization of biopolymer polyhydroxybutyrate (PHB) from terrestrial (P. hysterophorus) and aquatic (E. crassipes) invasive weeds</i>	ISSN 0960-8524 242, 304–310	Bioresoure technology, (IF =9.62)
Arup Jyoti Borah, S Singh, A Goyal, VS Moholkar. (2016)	An Assessment of Invasive Weeds as Multiple Feedstocks for Biofuels Production	ISSN 2046-2069 52, 47151-47163	RSC Advances,, (IF= 3.37)
M Agarwal, PK Dikshit, JB Bhasarkar, Arup Jyoti Borah, VS Moholkar. (2016)	<i>Physical insight into ultrasound-assisted biodesulfurization using free and immobilizedcells of Rhodococcus rhodochrous MTCC 3552</i>	ISSN 1385-8947 295, 254- 267	Chemical Engineering Journal (IF =13.27)
Arup Jyoti Borah, M Agarwal, M Poudyal, A Goyal, VS Moholkar. (2016)	Mechanistic investigation in ultrasound induced enhancement of enzymatic hydrolysis of invasive biomass species	ISSN 0960-8524 213, 342-349	Bioresource Technology (IF = 9.62)
J Bhasarkar, Arup Jyoti Borah, P Goswami, VS Moholkar. (2015)	Mechanistic analysis of ultrasound assisted enzymatic desulfurization of liquid fuels using horseradish peroxidase.	ISSN 0960-8524 196, 88-98	Bioresource technology (IF = 9.62)

Book chapter

<i>P Thornley, B Rathi, Arup Jyoti Borah, B Saha, J Adams, M Hiloidhari, (2022)</i>	<i>Bioenergy Technologies for a Net Zero Transition: Outcomes of UK-India Bioenergy Research Scoping</i>	ISBN 9781854498106	Supergen Bioenergy Hub
<i>V. S. Moholkar, P. K. Dikshit, S. Chakma, , Arup Jyoti Borah, J.Bhasarkar (2017)</i>	<i>Mechanistic issues of Sono-Biodegradation.</i>	ISBN1863-55208, 74-118.	Biodegradation and Bioremediation, Env. Sci. & Engg. Vol. 8. Stadium Press LLC
<i>D. Bora, L. Barbora, Arup Jyoti Borah, P. Mahanta (2021)</i>	<i>A Comparative Assessment of Biogas Upgradation Techniques and Its Utilization as an Alternative Fuel in Internal Combustion Engines</i>	ISBN 978- 981-15-0418-1, 95-115	Springer Nature Singapore

Conference Presentations (Poster Presentation)

AJ Borah, M Saha, A Goyal, V.S Moholkar	<i>Extraction & Characterisation of lignin and Biofuel production from composite invasive biomass</i>	Research Conclave, IIT Guwahati, (342) Mar 18-11, 2018 .
AJ Borah, A Goyal, R malani, VS Moholkar	<i>Kinetic modelling of dilute acid hydrolysis of various invasive species for biofuel production</i>	Asia pacific congress on catalysis organized by ICT, Mumbai. Catalysis Society of India. India Jan 17-21 2017 .
AJ Borah, A Goyal, VS Moholkar	<i>An assessment of multiple feedstock of invasive and noxious weeds as a candidate for Bioethanol production</i>	International conference on Current trends in Biotechnology. (ICCB-2016) organized at VIT, Vellore, & Biotech research Society India. December 8-10 th 2016 .
AJ Borah, M Agarwal, M Poudyal, A Goyal, VS Moholkar	<i>Mechanistic investigation in ultrasound induced enhancement of enzymatic hydrolysis of invasive biomass species.</i>	International conference on New Horizon in Biotechnology. (NHBT-2015, Trivandrum, India) Nov22-25, 2015 .
AJ Borah, A Goyal, VS Moholkar	<i>Establishing invasive weeds as a new feedstock for biorefinery: From Pain to Gain</i>	Indo-US Conference on Advanced Lignocellulosic Biofuels (Indo-US CALB- 2014)
AJ Borah, A Goyal, VS Moholkar	<i>Comparative assessment of various biomass as potential feedstock for biofuel production</i>	International conference on Harnessing Natural resources for Sustainable development: Global trend. Jan29- 31 th , 2014 .
AJ Borah, Selvi VA.	<i>Synthesis of Silica nanoparticles from biomass its characterization and application in agricultural pest control. (BPP96, pg-292</i>	18 th International conference Perspective and challenges in Chemical and Biological Sciences innovation. Post ISCBC-2012, IASST, Boragaon, India) Jan 30, 2012

Oral Presentation

A.j Borah, M Saha, A Goyal, VS Moholkar	<i>Ultrasound enhanced bioconversion of total reducing sugar obtained from mixed Invasive Composite biomass to ABE fermentation: A mechanistic investigation</i>	Research Conclave, IIT Guwahati, (97-98) Mar 18-11, 2018 .
A.J Borah, A Goyal, VS Moholkar	<i>Comparative insight of ultrasound induced enhancement of enzymatic hydrolysis of invasive biomass species</i>	Asia pacific congress on catalysis organized by ICT, Mumbai. Catalysis Society of India. India Jan

model and ITC study in the Bio catalysis. 17-21 2017.

R Dutta, A.J Borah, A.S Tamuli *Assessment of various produced water treatment methods applied oil fields of Assam (ICWM-WWWT-27), 153* International conference on waste management. (Recycle-16) IIT Guwahati, India. April 1-2, 2016.

Patent

Arup Jyoti Borah & Rajjul Hussain	<i>IOT based Smart Device for Computer vision syndrome</i>	Application: 202331036769 Date of filing: 23.05.2023
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Training Programme

Title	Venue	Duration
<i>Carbon Credits from Waste Management Projects"</i>	National Productivity Council, Webiner Certificate No :N698P14C692901W497	15 Jun 2021
<i>Entrepreneurship Development Programme, IIE Guwahati</i>	Indian Institute of Entrepreneurship, IIE, Govt of India.	10-20 Feb 2021
<i>Training on ORGANIC & HYDROPONIC FARMING</i>	MSME-Technology Development Centre, Firozabad	28 jul-02Aug 2020
<i>Workshop cum Training on PATENT SEARCH AND ANALYSIS</i>	Tezpur University, IPR cell & (DIPP) & TIFAC, DST, NewDelhi	25 feb 2017
<i>Workshop on "FLOW APPLICATIONS IN BASICS, APPLIED AND CLINICAL BIOLOGY"</i>	IIT Guwahati in association with The cytometry society, India	03-05 Nov 2016.
<i>TEQIP National course on BIOLOGICAL TREATMENT OF SOLID WASTE,</i>	TEQIP, Knowledge incubation centre, IIT Guwahati	8-10 Feb 2016
<i>Short term course on "Recent Trends in Fuel Cell Technology "</i>	Ministry of Human Resource Development, Govt of India. IIT Guwahati, India	28-29 Dec 2015.
<i>Short-term National course on "Biological treatment of Solid Waste "</i>	Ministry of Human Resource Development (MHRD), GOI, IIT Guwahati, India	8-10 Feb, 2015
<i>Hands on Training on Essential of Data management, Sequence alignment and phylogeneticanalysis</i>	Bioinformatics infrastructure facility (BIF) College of Veterinary , Assam Agricultural University, Sponsor: BTISnet of DBT	15-18 Nov, 2011
<i>Certificate course on clinical biochemistry</i>	Department of Chemistry/Biochemistry. M.S Ramaiah College. Bangaluru, India	18-28, Mar, 2009

Technical Skills

TECHNICAL SKILLS

Hands-on experience on Analytical Instruments	Field Emission Scanning Electron Microscope (FESEM), Fourier Transform Infrared Spectroscopy (FTIR), High Performance Liquid Chromatography (HPLC), Thermal Gravimetry analysis (TGA), UV -spectroscopy , Fluorescence Microscope, X-Ray Powder Diffraction (XRD), Gas Chromatography (GC), Flow cytometry, Circular Dichroism (CD)
Soft skills	MS-Office, Origin pro, Oracle, SQL (DBMS, RDMS), SAS programming (basic and SAS macro), Internet access Bioinformatics softwares (Bioedit, QSAR, mobile@rpbs, rasmol, hex 6.3, chemoffice, chem. Draw ultra, Molsoft, CORINA,blast, primer design, alignment, CN3D, NNpredict etc)

RECOMMENDATION ON REQUEST

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The declarations made in this curriculum vitae are true to the best of my knowledge and belief

Signature

