

## **CURRICULUM-VITAE**

**Dr. PRIYANKA NATH**

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**Email: [priyankanath2012@gmail.com](mailto:priyankanath2012@gmail.com)**



### **Career Objective:**

Currently looking for an opportunity to work in a challenging environment with a motivated team to utilize and expand my knowledge and skills in a professional manner for the betterment of myself as well as organization

### **Education**

Course	Institute/Board	Percentage/CGPA	Year
Ph.D	IIT Guwahati	.....	2020
Integrated Msc (B ioscience and Bioinformatics)	Tezpur University	8.6 (CGPA) #1 <sup>st</sup> class 1 <sup>st</sup>	2014
Senior secondary	Assam Higher Secondary education council	63.2%	2008
Secondary	Central Board of secondary education	82.2%	2006

### **Technical skills:**

1. Cloning, protein engineering, expression and biochemical characterization of enzymes.
2. Protein purification by Fast protein liquid chromatography (FPLC).
3. In silico homology modeling, structural characterization and molecular dynamics studies of proteins and protein ligand interaction.
4. Enzyme production pretreatment of lignocellulosic substrates, saccharification and bioethanol production

### **Computer skills:**

LINUX, MS office

## Projects:

1. Ph.D thesis/Dissertation Title: Protein engineering of  $\beta$ -1,4-endoglucanase and Chimera construction with  $\beta$ -glucosidase from *Clostridium thermocellum* for improving ligno-cellulosic biomass saccharification.
2. Msc Dissertation Title: A computational approach to study protein ligand interaction for TlS, tRNA<sup>Ile</sup>CAU anticodon modifying enzyme in bacteria.

## List of publications:

1. **Nath, P.**, Dhillon, A., Kumar, K., Sharma, K., Jamaldheen, S. B., Moholkar, V. S., & Goyal, A. (2019). Development of bi-functional chimeric enzyme (CtGH1-L1-CtGH5-F194A) from endoglucanase (CtGH5) mutant F194A and  $\beta$ -1, 4-glucosidase (CtGH1) from *Clostridium thermocellum* with enhanced activity and structural integrity. *Bioresource Technology*, 282, 494-501.
2. **Nath, P.**, Sharma, K., Kumar, K., & Goyal, A. (2020). Combined SAXS and computational approaches for structure determination and binding characteristics of Chimera (CtGH1-L1-CtGH5-F194A) generated by assembling  $\beta$ -glucosidase (CtGH1) and a mutant endoglucanase (CtGH5-F194A) from *Clostridium thermocellum*. *International Journal of Biological Macromolecules*. 148, 364-377
3. **Nath, P.**, Maibam P.D., Singh, S., Rajulapati, V & Goyal, A. (2020). Sequential pretreatment of sugarcane bagasse by alkali and organosolv for improved delignification and cellulose saccharification by chimera and cellobiohydrolase for bioethanol production. *3 Biotech*, 11, 1-16.
4. **Nath, P.**, & Goyal, A. (2021). Structure and dynamics analysis of multi-domain putative  $\beta$ -1, 4-glucosidase of family 3 glycoside hydrolase (PsGH3) from *Pseudopedobacter saltans*. *Journal of Molecular Modeling*, 27(4), 1-16.
5. Kumar, K., **Nath, P.**, and Goyal, A. (2018). Structural characterization of an endo  $\beta$ -1, 3-glucanase of family 81 glycoside hydrolase (CtLam81A) from *Clostridium thermocellum*. *Journal of Proteins & Proteomics*, 9(3).
6. Nedumaran, M., Singh, S., Jamaldheen, S. B., **Nath, P.**, Moholkar, V. S., & Goyal, A. (2020). Assessment of combination of pretreatment of Sorghum durra stalk and production of chimeric enzyme ( $\beta$ -glucosidase and endo  $\beta$ -1, 4 glucanase, (CtGH1-L1-CtGH5-F194A) and cellobiohydrolase (CtCBH5A) for saccharification to produce bioethanol. *Preparative Biochemistry & Biotechnology*, 1-14.
7. Singh, S., Kumar, K., **Nath, P.**, & Goyal, A. (2020). Role of glycine 256 residue in improving the catalytic efficiency of mutant endoglucanase of family 5 glycoside hydrolase from *Bacillus amyloliquefaciens* SS35. *Biotechnology and Bioengineering*.
8. Gavande, P. V., **Nath, P.**, Kumar, K., Ahmed, N., Fontes, C. M., & Goyal, A. (2022). Highly efficient, processive and multifunctional recombinant endoglucanase RfGH5\_4 from *Ruminococcus flavefaciens* FD-1 v3 for recycling lignocellulosic plant biomasses. *International Journal of Biological Macromolecules*.

## Conferences:

1. Presented a poster entitled "Identification of promising functional residues capable of introducing endo-xylanase activity into an exo-acting arabinofuranosidase (Ct43Araf) with enhanced activity: An *in silico* approach" in "56<sup>th</sup> International Annual Conference of Association of Microbiologists of India (AMI)", December 7-10, 2015, Jawahar Lal Nehru University, New Delhi.
2. Presented a poster entitled "Protein engineering of endo  $\beta$ -1-4 glucanase (CtGH5) from *Clostridium thermocellum* by site-directed mutagenesis for development of mutant with enhanced activity" in "Bioprocessing India, Recent Trends in Bioprocessing for Healthcare, Energy and Environment" Dec 9-11, 2017, IIT Guwahati, Assam India.

3. Presented a poster entitled “Construction and characterization of chimeric enzyme developed by fusing  $\beta$ -glucosidase (*CtGH1*) and endoglucanase (*CtGH5-F194A*) both from *Clostridium thermocellum* for enhanced catalytic efficiency and thermostability” in “International Conference on Biotechnological Research and Innovation for Sustainable Development” 15<sup>th</sup> BRSI convention. CSIR- Indian Institute of Chemical Technology (CSIR-IICT), Nov. 22-25, 2018, Hyderabad, India.
4. Presented a poster entitled “Combined SAXS and computational approaches for structure determination and binding characteristics of chimera (*CtGH-L1-CtGH5-F194A*) generated by assembling  $\beta$ -glucosidase (*CtGH1*) and a mutant endoglucanase (*CtGH5-F194A*) from *Clostridium thermocellum*. ” in “88th SBC(I) Annual Meeting”, Oct 31- Nov 3, 2019, Bhabha Atomic Research Centre (BARC), Mumbai, Maharashtra, India.
5. Presented a poster entitled “Protein engineering of  $\beta$ -1,4-endoglucanase and Chimera construction with  $\beta$ -glucosidase from *Clostridium thermocellum* for improving ligno-cellulosic biomass saccharification and bioethanol production” in “Research Conclave”, March 19-22, 2020, IIT Guwahati, Assam.

### Workshops:

1. Participated and contributed in the scientific writing and speed sparring workshop organized by IHE-Delft and BioSD-2018 at CSIR- Indian Institute of Chemical Technology (CSIR-IICT), November 22nd 2018, Hyderabad, India.
2. Participated in the Seminar/Workshop on “Evolutionary Genomics” organized by Bioinformatics Infrastructure Facility (BIF), Department of Molecular Biology and Biotechnology, Tezpur University, February 14th-17th 2014, Tezpur, Assam.
3. Participated in the Workshop on “Cell Culture Techniques” organized by Department of Molecular Biology and Biotechnology, Tezpur University, March 28th-31st, 2014, Tezpur, Assam.
4. Participated in the DBT-BIF Workshop on “Web-server: Application as Bioinformatics Tool for Genome and Proteome Analysis” organized by Bioinformatics Infrastructure Facility (BIF), Department of Molecular Biology and Biotechnology, Tezpur University, March 30th-31st, 2013, Tezpur, Assam.
5. Participated in the DBT-BIF Workshop on “Recent Advances in Microbial Biotechnology and Molecular Evolution” organized jointly at Bioinformatics Infrastructure Facility (BIF) and Department of Molecular Biology and Biotechnology, Tezpur University, March 1st-4th, 2013, Tezpur, Assam.
6. Participated in the training on “Application of Computer in Biological Sciences” organized by Department of Zoology, Darrang college, Tezpur under Star College Scheme of DBT, Govt. of India, January 23rd-25th 2013, Tezpur, Assam.
7. Attended National Workshop on “Applied Microbiology and Bioprocess Engineering” with special reference to Petroleum Biotechnology, organized by ONGC-Centre for Petroleum Biotechnology, Tezpur University, 23rd-24th August, 2012, Tezpur, Assam

### Awards/Achievements:

1. Awarded Gold medal for securing first position in the Master’s degree examination in Bioscience and Bioinformatics (Five year integrated programme) in the year 2014.
2. Awarded DST Inspire fellowship from Department of Science and Technology, New Delhi, India on April 2015 for five year Ph.D course.
3. Best poster award on the work entitled “Identification of promising functional residues capable of introducing endo-xylanase activity into an exo-acting arabinofuranosidase (*Ct43Araf*) with enhanced activity: An *in silico* approach” in “56<sup>th</sup> International Annual Conference of Association of Microbiologists of India (AMI)” organized by Jawaher Lal Nehru University, New Delhi during December 7-10, 2015.

## Extracurricular achievement:

Awarded Third position in Poetry Writing competition in 15<sup>th</sup> Annual Meet, 2010-2011 organized by Tezpur University, Tezpur, Assam.

## References:

1. Prof. Arun Goyal, Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati.  
email: arungoyl@iitg.ac.in
2. Dr. Suvendra Kumar Ray, Department of Molecular Biology and Biotechnology, Tezpur University.  
email:suven@tezu.ernet.in

## Personal details

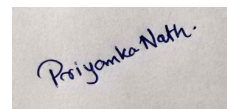
<b>Father's Name</b>	Subhas Chandra Nath
<b>Mother's Name</b>	Rina Nath
<b>Husband's Name</b>	Debjyoti Nath
<b>DOB (Age)</b>	20-12-1989
<b>Sex</b>	Female
<b>Caste</b>	Hindu/Other Backward Class
<b>Marital status</b>	Married
<b>Nationality</b>	Indian
<b>Present Address</b>	C/O Debjyoti Nath, A-701, Casa Lagoona, Lakeshore Greens, Palava Phase - II(Khoni Lodha), Off Taloja Bypass Road, Khoni Village, Near Hotel Nisarg, Dombivali (East) - 421204, PO-Manpada, Dist - Thane, State- Maharashtra
<b>Qualities/Strengths</b>	Possess good communication and writing skills, strong interpersonal qualities and have the ability to learn quickly and adapt to new technologies.
<b>Language proficiency</b>	English, Bengali &Hindi
<b>Hobbies</b>	Reading, Writing poetry, Debating and listening to music

## Declaration

I certify that above mentioned information is correct to the best of my knowledge and nothing has been concealed.

**Place: Thane,Maharashtra**

**Date: 20<sup>th</sup> May 2022**



**(Priyanka Nath)**