

Curriculum Vitae

Name: Soumya Sasmal

Address: Department of Biotechnology

Visva Bharati, Santiniketan

West Bengal -741325

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Academic Qualifications:

Exam Passed	University/Board	Year of passing
Ph.D.	Indian Institute of Technology Guwahati	2014
MBA	Indira Gandhi National Open University	2012
PGDIPR	National Law School of India University	2009
M.Tech (Biotechnology)	Jadavpur University.	2006
B.Tech (Dairy Technology)	W.B. University of Animal and Fishery Science ⁷³	2004
Higher Secondary	W.B. Council of higher Secondary Education	2000

Research projects / Sponsored project / Consultancy activities:

Sponsoring Agency	Title of Project	Period	Amount	Status (Completed/ Ongoing)
Department of Biotechnology, Govt. of India	Analysis of Microbiological Quality of Milk and Dairy Products at Different Food outlets	1.6 year	8 lakhs	Completed

Department of Biotechnology, Govt. of India	Low-cost Process Development for the Production of Xylitol from Waste agricultural Biomass with Special focus on De-lignification and Downstream Processing	3 years	64.87 lakhs	Completed
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Professional Positions Held:

University/ Organization	Designation	Duration		Total Period	Nature of Experience
		From	To		
Visva Bharati (Central University)	Assistant Professor	28/07/2022	Continuing	2Y 4M	Teaching
Netaji Subhas University of Technology, New Delhi (Government of Delhi)	Assistant Professor	21/08/2014	27/07/2022	7Y 11M	Teaching
Center of Innovative and Applied Bioprocessing Mohali (Department of Biotechnology Government of India,	Scientist “C”	26/04/2013	21/08/2014	1Y 3M 28D	Research
Nagarjuna Fertilizers and Chemicals Ltd, Hyderabad	Scientist	1/06/2006	06/07/2009	3Y 1M 6D	Industry (R&D)

Course Taught:

Theory Course: Chemical engineering principles, Enzymology and Enzyme Technology, Bioprocess Technology, Fundamentals of Biochemical Engineering, Microbiology,

Laboratory Course: Enzymology and Enzyme Technology, Bioprocess Technology, Methods and Instrumentation in Biotechnology

List of Publications:

Text Book

Mohanty, K., & Sasmal, S. (2025). Biochemical Reaction Engineering (1st ed.). CRC Press.
<https://doi.org/10.1201/9781003581116>

Book Chapters/Monographs Authored:

Sasmal, S. (2025). Bioethanol Production: A Comprehensive Guide to Feedstocks, Processes, and Sustainability. In *Hydrogen and Low-Carbon Fuels in Circular Bio-economy: Assessment Methodologies, Production Technologies and Sector-Specific Applications* (pp. 187-208). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-92894-9_10

Tiwari, O. N., Sasmal, S. Shadengi, P. K (2025). Technological Views on Electronic Waste, Recycling, and Resource Recovery In Oleaginous Microbes for Waste Biomass Valorization (pp.215-228) Apple Academic Press

Kataria, A. K., Mohanty, K., & **Sasmal, S.** (2023). Algal biofuel and its prospects. In *Bioenergy Engineering* (pp. 299-314). Woodhead Publishing.

Sasmal, S. and Mohanty, K. Advances in Bio ethanol Technology: Production and Characterization. Liquid Biofuels: Fundamentals, Characterization and Applications. 2021 (pp. 215-230) Wiley

Sasmal, S. and Mohanty, K. Pretreatment of lignocellulosic biomass toward biofuel production. In *Biorefining of Biomass to Biofuels 2018* (pp. 203-221). Springer, Cham.

Uday US, Mahata N, **Sasmal S** , Bandyopadhyay TK, Mondal A, Bhunia B Dyes contamination in environments, their ecotoxicological effects, health hazards and biodegradation and bioremediation mechanisms for environmental cleanup. In: Bharagava RN (ED) Environmental Pollutants and their Bioremediation Approaches. 2017: CRC Press, Taylor & Francis Group, USA

Bhunia B, Behera K, **Sasmal S** and Dey A., Enzyme: The Biological Messengers and its Kinetics. Modern Biotechnology and Its Applications Vol.II (12) 649-685. ISBN 9789381450833; publisher: New India Publishing Agency

Refereed Journals:

Saxena, S., Khetra, Y., Ganguly, S., & Sasmal, S. (2025). Morphological and Textural Properties of Feta Cheese Made of Vegetable Protease. *Food Bioengineering*. <https://doi.org/10.1002/fbe2.70013>

Kataria, A. K., Dubey, A. K., Mohanty, K., & Sasmal, S. (2025). Pretreatment strategy for enhanced lipid extraction from algal biomass in bio-oil production. **Indian Journal of Chemical Technology (IJCT)**, 32(2), 190-202. <https://doi.org/10.56042/ijct.v32i2.15242>

Vardhan, H., Sasmal, S., & Mohanty, K. (2024). Saccharification and structural changes in Areca catechu husk fiber. *Biofuels, Bioproducts and Biorefining*, 18(5), 1495-1510. <https://doi.org/10.1002/bbb.2640>

Singh, S. K., **Sasmal, S.**, & Kumar, Y. (2024). Therapeutic Potential of HMF and Its Derivatives: a Computational Study. *Applied Biochemistry and Biotechnology*, 196(2), 841-877. <https://doi.org/10.1007/s12010-023-04547-1>

Saxena, S., Vasudevan, H., Saini, S., & **Sasmal, S.** (2023). Comparative Nutritional Assessment of Millet-Based Milk Produced by Ultrasound, Germination, and a Combined Approach. **ACS Food Science & Technology**, 3(4), 600-607. <https://doi.org/10.1021/acsfoodscitech.2c00342>

Singh, S. K., Kumar, Y., & **Sasmal, S.** (2023). One-Step method for the production of 5-HMF from catalytic conversion of microalgal biomass. *Biomass Conversion and Biorefinery*, 1-10. <https://doi.org/10.1007/s13399-023-04316-4>

Vardhan, H., **Sasamal, S.**, & Mohanty, K. (2023). Xylitol Production by Candida tropicalis from Areca Nut Husk Enzymatic Hydrolysate and Crystallization. *Applied Biochemistry and Biotechnology*, 1-24. <https://doi.org/10.1007/s12010-023-04469-y>

Srivastava, R. K., Sarangi, P. K., Shadangi, K. P., **Sasmal, S.**, Gupta, V. K., Govarthanan, M., ... & Subudhi, S. (2023). Biorefineries development from agricultural byproducts: Value

addition and circular bioeconomy. *Sustainable Chemistry and Pharmacy*, 32, 100970. <https://doi.org/10.1016/j.scp.2023.100970>

Singh, S. K., Kumar, Y., & Sasmal, S. (2023). Perspectives of HMF and LA from microalgal biomass. *Algal Research*, 72, 103133. <https://doi.org/10.1016/j.algal.2023.103133>

Vardhan, H., Mahato, R. B., Sasmal, S., & Mohanty, K. (2022). Production of xylose from pre-treated husk of areca nut. *Journal of Natural Fibers*, 19(1), 131-144. <https://doi.org/10.1080/15440478.2020.1731905>

Saxena, S., Saini, S., & Sasmal, S. (2022). General Public Awareness Survey Drive on Impact of Indian Culinary Practices on Nutritional Profile of Food: Special Emphasis on Millet Awareness. *Journal of Culinary Science & Technology*, 1-11. <https://doi.org/10.1080/15428052.2022.2073936>

Saxena, S., Rawat, S., Sasmal, S., & Shadangi, K. P. (2022). A mini review on microwave and contemporary based biohydrogen production technologies: a comparison. *Environmental Science and Pollution Research*, 1-13. <https://doi.org/10.1007/s11356-022-21979-0>

Singh, S. K., Kumar, Y., & Sasmal, S. (2022). Enhanced Algal Biomass Production in a Novel Electromagnetic Photobioreactor (E-PBR). *Current Microbiology*, 79(12), 395. <https://doi.org/10.1007/s00284-022-03100-3>

Vardhan, H., Sasamal, S., & Mohanty, K. (2022). Fermentation process optimisation based on ANN and RSM for xylitol production from areca nut husk followed by xylitol crystal characterisation. *Process Biochemistry*, 122, 146-159. <https://doi.org/10.1016/j.procbio.2022.10.005>

Mukherjee, A., Sarkar, D., & Sasmal, S. (2021). A review of green synthesis of metal nanoparticles using algae. *Frontiers in Microbiology*, 12, 693899. <https://doi.org/10.3389/fmicb.2021.693899>

Saxena, S., & Sasmal, S. (2021). Bio-prospecting of Waste Vegetable Resources for Isolation of Milk Clotting Proteases. *Journal of The Institution of Engineers (India): Series E*, 102(2), 293-298. <https://doi.org/10.1007/s40034-021-00220-6>

Razi, M. O., & Sasmal, S. (2022). Organosolv pre-treatment of groundnut (Arachis hypogaea) shell and its upshot. *Biomass Conversion and Biorefinery*, 12(11), 5221-5228. <https://doi.org/10.1007/s13399-020-00920-w>

Tiwari, O. N., **Sasmal, S.**, Kataria, A. K., & Devi, I. (2020). Application of microbial extracellular carbohydrate polymeric substances in food and allied industries. *3 Biotech*, 10, 1-17. <https://doi.org/10.1007/s13205-020-02200-w>

Kumar, A., & **Sasmal, S.** (2020). Rheological and physico-chemical properties of milk gel using isolate of pumpkin (*Cucurbita moschata*) seeds: A new source of milk clotting peptidase. *Food Hydrocolloids*, 106, 105866. <https://doi.org/10.1016/j.foodhyd.2020.105866>

Sandhibigraha, S., **Sasmal, S.**, Bandyopadhyay, T. K., & Bhunia, B. (2020). Computational fluid dynamics analysis of flow through immobilized catalyzed packed bed reactor for removal of 4-chlorophenol from wastewater. *Environmental Engineering Research*, 25(6), 878-889. <https://doi.org/10.4491/eer.2019.184>

Mahto, R. B., Yadav, M., **Sasmal, S.**, & Bhunia, B. (2019). Optimization of process parameters for production of pectinase using *Bacillus subtilis* MF447840. 1. *Recent patents on biotechnology*, 13(1), 69-73. <https://doi.org/10.2174/1872208312666180917094428>

Sasmal, S., Goud, V. V., & Mohanty, K. (2018). Simultaneous ethanol and hydrogen production by fermentation from Bon bogori (*Ziziphus rugosa*). *Renewable Energy Focus*, 26, 71-80. <https://doi.org/10.1016/j.ref.2018.07.006>

Robinson, T., Mohan, M., Chilukoti, B., **Sasmal, S.**, Banerjee, T., & Goud, V. V. (2015). Optimization of dilute acid and hot water pretreatment of different lignocellulosic biomass: A comparative study. *Biomass and Bioenergy*, 81, 9–18. <https://doi.org/10.1016/j.biombioe.2015.05.006>

Saha, T., **Sasmal, S.**, Alam, S., & Das, N. (2014). Tamarind kernel powder: A novel agro-residue for the production of cellobiose dehydrogenase under submerged fermentation by *Termitomyces clypeatus*. *Journal of Agricultural and Food Chemistry*, 62(15), 3438–3445. <https://doi.org/10.1021/jf405278y>

Sasmal, S., Goud, V. V., & Mohanty, K. (2013). Dilute sulfuric acid pretreatment of bon bogori (*Ziziphus rugosus*): Proselyte to amorphous biomass for biofuel production. *Journal of Bioprocess Engineering and Biorefinery*, 2, 225–229.

Sasmal, S., Goud, V. V., & Mohanty, K. (2013). Delignification kinetics of lime pretreatment: An ineluctable tread for augmenting saccharification. *Journal of Biobased Materials and Bioenergy*, 5, 660–664. <https://doi.org/10.1166/jbmb.2013.1395>

Sasmal, S., Goud, V. V., & Mohanty, K. (2013). Determination of salutary parameters to facilitate bio-energy production from three uncommon biomasses using thermogravimetric analysis. *Journal of Thermal Analysis and Calorimetry*, 111, 1649–1655. <https://doi.org/10.1007/s10973-011-1891-0>

Sasmal, S., Goud, V. V., & Mohanty, K. (2012). Characterization of biomasses available in the region of North-East India for production of biofuels. *Biomass and Bioenergy*, 45, 212–220. <https://doi.org/10.1016/j.biombioe.2012.06.008>

Sasmal, S., Goud, V. V., & Mohanty, K. (2012). Ultrasound-assisted lime pretreatment of lignocellulosic biomass towards bioethanol production. *Energy & Fuels*, 26(6), 3777–3784. <https://doi.org/10.1021/ef300669w>

Sasmal, S., Goud, V. V., & Mohanty, K. (2011). Optimization of the acid-catalyzed pretreatment of areca nut husk fiber by Taguchi design method. *Biosystems Engineering*, 110, 465–472. <https://doi.org/10.1016/j.biosystemseng.2011.09.013>

Papers presented in National/International Conferences:

S.Sasmal ., Sustainable Production of 5-Hydroxymethylfurfural from Microalgal Biomass: Optimization, Catalysis, and Therapeutic Potential on 2nd International Symposium on Advances in Algal Research (AAR-2024), 17-18 December 2024, Hyderabad

S. Sasmal, V. V. Goud, K. Mohanty., Lime pretreatment: A sustainable route towards biofuel production. International Exhibition and Conference on Water Technologies, Environmental Technologies & Renewable Energy, 13-14 February 2013, Bombay.

S. Sasmal , S. Majumdar, National Food security and Food Grain Supply and Distribution Chain Management., 2nd International Sustainability Conference 2011 People , Planet and Prosperity., 9-11 November 2011, IIM shilong., pp 67-72.

S. Sasmal, V. V. Goud, K. Mohanty., Optimization of dilute acid pretreatment of *Zizupus rugosus* applying Taguchi robust design method. International congress on Renewable Energy, 2-4 November, 2011, Tezpur University, Assam., pp. 81-87.

S. Sasmal, V. V. Goud, K. Mohanty., Dilute Acid Pretreatment of Albizzia Lucida towards Biofuel Production: Process Optimization Using Taguchi Robust Design Method., Renewable Energy Technologies: Issues & Prospects (ISBN: 978-93-80697-95-6) Edts: G. Sankar, B. Das, R. Blange, 2011., pp 75-78.

Sasmal S, Goud VV and Mohanty K., Determination of kinetic parameters of Areca nut husk fiber using thermo-gravimetric analysis, International Conference on Renewable Energy., 17-21 Jan 2011 Jaipur.

S. Sasmal, V. V. Goud, K. Mohanty., Enzymatic digestibility of Arecanut husk fiber by optimization of the acid catalyzed pretreatment process., 60th Canadian Chemical engineering conference 24-27 Oct 2010 Saskatoon Canada.

S. Sasmal, V. V. Goud, K. Mohanty, Pretreatment of Areca nut husk fiber using Taguchi method of optimization, **1st International Conference on New Frontiers in Biofuels**, January 18-19, 2010 at New Delhi, India

Patent :

- Indian Patent No 282345 (granted) “**Process of Producing Alcohol from Carboxylic acid**”
- Indian Patent (Published) “**Process of Algal Production in Electromagnetic Photobioreactor.**” Application no. 202111030305

Details of Ph.D. Thesis supervised

Sl. No.	Title of Ph.D. Thesis	Institute	Name of student	Year Status
1	Xylitol from low cost substrate and process optimization	Indian Institute of Technology Guwahati	Harsh Vardhan	2023 Awarded
2	Production of value-added chemical (hydroxymethylfurfural) from algal biomass	Netaji Subhas University of Technology	Shashank Kumar Singh	2024 Awarded

PG Dissertation Guided

Sl. No.	Title of Dissertation/Project	Institute	Name of student	Year
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1	Milk clotting potential of pumpkin seed extract	Netaji Subhas Institute of Technology	Abhiraman Kumar	2019
2	Spent medium recycling and cultivation of chlorella sorokiana	Netaji Subhas Institute of Technology	Suchetna Kushwah	2020
3	Characterization of Feta cheese produced from waste vegetable resources	Netaji Subhas University of Technology	Sarthak Saxena	2021
4	Flux Balance Analysis of Stochastic Metabolic Networks	Netaji Subhas University of Technology	Rakshit Upreti	2022
5	Determination of thermal kinetic parameters of Rice Straw	Visva Bharati	Sajal Kumar Barman	2023
6	Optimization of Pyrolysis process for the production of Bio oil from Algal Biomass	Visva Bharati	Arnab Halder	2023
7	Determination of Heat and Mass Transfer Co efficient and Kinetics of Colour Changes After Deep Fat Frying of Raw Banana	Visva Bharati	Shefali	2024
8	Impact of Capsaicin on phages that infect dairy starter bacteria: An Insilico Approach	Visva Bharati	Aarti Kumari	2025

Professional Activities:

Faculty as participants/resource persons in faculty development/training activities

a) Participated in Workshop on “NBA Accreditation Workshop” at City Innovates Learning Center Gurgaon (02-03 July 2015)

b) Participated in Workshop on “Moodle: An Online Learning Management System” held on 13th and 14th July 2015 at, NSIT.

c) Participated in Workshop programme for “NBA accreditation: Engineering” held on

27th July and 7th August 2015 at NSIT.

d) Participated in Workshop on “IPR Awareness” held on 22nd and 23rd January 2016 at NSIT.

e) Attend Short term course on “Environmental pollution: Green and alternative fuels” from 12/12/2016 to 23/12/2016 at National Institute of Technical Teacher Training and Research, Bhopal, India

f) Participated in Workshop on “Artificial Intelligence in Engineering applications” at NSIT from 26/12/2016 to 30/12/2016.

g) Expert lecture on “Simple and Useful Statistics for researchers” at workshop on “Research methodology and Scientific Writing” held on March 15-17 2017.

List of short-term courses, workshop arranged:

- Organized a Workshop on “*Biohazard Management*” for Faculty and Research Scholars of NSIT on 24th and 25th June 2016.
- Organized Faculty Development Program, “Bioenergy- a sustainable energy source to fuel the future” sponsored by ATAL, AICTE from 5/10/2020 to 09/10/2020

Membership:

- Asia-Pacific Chemical, Biological & Environmental Engineering Society (No: 20544)
- Institute of Engineers India, Life member (M151837-7)
- Indian Science Congress Association (L32841)

Academic Achievements

- **MHRD, Gov. of India Fellowship** for Doctoral studies (July 2009 onwards)
- Awarded **University merit scholarship** during under graduation (2000-2004).
- Awarded **National merit scholarship** for the results of 10th board examination (1998)

- Awarded **Chartered Engineer** from Institute of Engineers India.
- **Associate Editor:** International Journal of Biotechnology Applications ISSN: 0975-2943 & E-ISSN 0975-9123 since 14/02/2011

Administrative Responsibilities:

- Faculty in Charge of SPICMACAY, NSIT Chapter (society to promote Indian Classical Music and Arts).
- Co-Coordinator of MOKSHA & INNOVASION 2017 (Student Technical and Cultural fest of NSIT).
- Warden of Bhaskara Hostel (Capacity 275 Students) since June 2018
- Nodal officer at NSUT for AISHE, Ministry of Education Govt of India, 2019-2021
- Principle Member from Visva Bharati for Medical Biotechnology and Nanotechnology Section Committee of BIS, Govt of India 2025 onwards