**DR. Jayati Bhowal (nee sarkar)**

Assistant Professor (Assistant Professor)

School of Community Science and Technology,

Indian Institute of Engineering Science and Technology, Shibpur

Date of Birth 6th December, 1970

* **Academics**

**B.Sc.** Calcutta University Chemistry

**M. Sc.** Calcutta University Biochemistry (Special paper: **Molecular Biology)**

**GATE** Life Sciences

**Ph. D.** IACS (JU) Biochemistry & Microbiology

* **Teaching Experience**

**Assistant Professor**

School of Community Science and Technology, IIEST, Shibpur (2009-continuing)

**Lecturer** (Contractual)

Purabi Das School of Information Technology, IIEST, Shibpur (2006-2008)

* **Research area of interest**

1. Technology Developments for Preparation of Low Cost Non-Dairy Food Products Enriched with Health-Benefit Ingredients.
2. Microbial fermentation process for production of valuable food ingredients.

(Microbial Enzymes, Microbial Colour, Structured lipids, Single Cell Protein for food and feed application)

1. Utilization of agricultural waste for the production of value added food ingredients (bioflavors, prebiotics)
2. Production and applications of Bioactive Peptide from microbial sources for health benefit

* **Research publications**

Journals Published 30 (International 27, National 03)

Conferences 26 (International 23, National 03)

* **PhD Supervision**

**Awarded 03**, **continuing 06** (with 02 DST-INSPIRE FELLOW, UGC NET JRF: 01, ICMR-SRF: 01)

* **Research projects completed 03**

Ministry of Consumer Affairs Food & Public Distribution (Co PI, Rs.10.70 lakhs),

UGS Minor (PI, Rs.1.6 lakhs)

Department of Biotechnology, Govt. of India (Co PI, Rs.19.5 lakhs)

**ACHIEVEMENTS**

**1.Second prize in Oral presentation** in Food and Agricultural Biotechnology session of Biosangam 2018 by Saheli Ghosal,D.K. Bhattacharyya, Jayati Bhowal.

**2.First Prize in Poster presentation** in Food Science and Technology at the 50th Annual Conference of Indian Dietetic Association (IDA) organized by IDA, Bengal Chapter on December 2018 by Sucharita Sengupta and Jayati Bhowal.

**3.Award for best poster presentation** in Challenges in Product development of *medicinal* implants and devices, IIEST Shibpur, Dec. 2016 "Production of superior quality protein hydrolysate from edible oyster mushroom (*Pleurotus ostreatus*)'' by Bhaswati Goswami and Jayati Bhowal.

**4.Award for best poster presentation** in Challenges in Product development of *medicinal* implants and devices, IIEST Shibpur, Dec. 2016 on “Cardio protective effect of long chain PUFAS (mainly 20:5, 22:6 and 18:3 GLA) containing soy yogurt against cholesterol induced liver damage in swiss albino mice" by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya.

**5.Best Poster Award** in *67th Annual Convention of Oil Technologists’ Association of India* “A Novel Approach for Making Soy Yogurt Containing Rice Bran Oil and Sesame oil as Superior Quality Probiotic Yogurt by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya.

**6.Award of Excellence in the poster presentation session** in *20th State Science and Technology Congress 2013(BESU, Shibpur)* session in Life Science Category Technology of Production of Symbiotic Dahi” by Samadrita Sengupta, Jayati Bhowal and D. K. Bhattacharyya.

**Research Publications**

* **International**

1. Effect of pretreatment with organic solvent on enzymatic digestibility of cauliflower wastes. Preparative Biochemistry and Biotechnology, 49 (10), 935-948, 2019. S Majumdar, B Goswami, A Chakraborty, DK Bhattacharyya, **J Bhowal.**
2. **Emulsions stabilized by soy protein nanoparticles as potential functional non- dairy yogurts.** Journal of the Science of Food and Agriculture 99 (13), 5808-5818, 2019. S Sengupta, DK Bhattacharyya, R Goswami, **J Bhowal.**
3. Hepatoprotective effects of synbiotic soy yogurt on mice fed on high cholesterol diet*.* **Nutrition**, 63-64, 36-44, **2019**. Samadrita Sengupta, Hemanta Koley, Shanta Dutta, **Jayati Bhowal**.
4. Effective deligniﬁcation and decrystallization of cauliﬂower wastes by using dilute phosphoric acid for efficient enzymatic digestibility to produce fermentable sugars. **Journal of Biomass and Bioenergy**, 125, 169-179, **2019**. Sayari Majumdar, Antara Naha, D.K.Bhattacharyya, **Jayati Bhowal**
5. Antioxidant and Hypocholesterolemic effect of functional soy yogurts fortified with ω-3 and ω-6 polyunsaturated fatty acid s in Balb/c mice. **European Journal of Lipid Science and Technology**, 121, 5, **2019**. Samadrita Sengupta, Hemanta Koley, Shanta Dutta, **Jayati Bhowal**
6. Hypocholesterolemic effect of *Spirullina platensis* (SP) fortified functional soy yogurts on diet-induced Hypocholesterolemia. **Journal of Functional Foods,** 54-64, 48, **2018**. Samadrita Sengupta, Hemanta Koley, Shanta Dutta, **Jayati Bhowal**.
7. Improved quality attributes in soy yogurts prepared from DAG enriched edible oils and edible deoiled soy flour. **European Journal of Lipid Science and Technology,** 1-10, **2018**. Samadrita Sengupta, D.K.Bhattacharyya, **Jayati Bhowal**.
8. Studies on preparation of dietetic rasgulla (cheese ball) from edible quality flours and antioxidant rich vegetable oils. **LWT-Food Science and Technology**, 86, 473-482, 2018. Samadrita Sengupta, **Jaytai Bhowal.**
9. Effects of different methods of drying on antioxidant and microscopic characteristics of *Spirullina platensis* enriched soy yogurt. **Journal of Microbiology, Biotechnology and Food Sciences**, 6(4), 1001-1006, **2017**. Samadrita Sengupta, Jaytai Bhowal.
10. Optimization for ingredient and processing parameter for the production of *Spirullina platensis* incorporated soy yogurt. **Journal of Microbiology, Biotechnology and Food Sciences**, 6(4), 1081-1085, **2017**. Samadrita Sengupta, Jaytai Bhowal.
11. Effects of coagulant agent on physic-chemical and organoleptic properties of non-dairy rasgulla (Cheese ball). **Journal of Microbiology, Biotechnology and Food Sciences**, 6(4), 1107-1111, **2017**. Samadrita Sengupta, **Jaytai Bhowal**.
12. Study on enzymatic hydrolysis of sal (*Shorea robusta*) starch to dextrin. Annals of Biological Research, 6 (6):8-12, **2015**. Sayari Majumdar, D.K. Bhattacharyya, **Jayati Bhowal**.
13. Production of Protein Enriched Ready-To-Eat Extruded Food Products Using Edible Quality Sesame Flour, Rice Flour and Bengal Gram Flour. International Journal of Food Safety, Nutrition, Public Health and Technology, 7(2), 5-12, **2015**. Samadrita Sengupta, Sanjukta Kar, Nil Ratan Bandyopadhyay, **Jayati Bhowal**, Minakshi Ghosh, D.K.Bhattacharyya.
14. Isolation, Identification and Analysis of Probiotic Properties of *Lactobacillus* *spp.* from Selected Regional Dairy Product. International Journal of Current Microbiology and Applied Sciences, 4(6): 621-628, **2015**. Ankita Chakraborty, **Jayati Bhowal**.
15. Production and evaluation of yogurt with watermelon (*Citrullus lanatus*) juice. Journal of International Academic Research for Multidisciplinary, 2(5), 249-257, **2014**. Samadrita Sengupta, Ankita Chakraborty, **Jayati Bhowal**.
16. Identification and Characterization of Extracellular Red Pigment Producing Bacteria Isolated from Soil. International Journal of Current Microbiology and Applied Sciences, 3(9), 169-176, **2014**. Bhaswati Goswami, **Jayati Bhowal**.
17. Development of new kinds of soy yogurt containing functional lipids as superior quality food. Annals of Biological Research 4(4), 144-151, **2013**. Samadrita Sengupta, DK Bhattacharyya, **Jayati Bhowal**.
18. Studies on isolation and characterization of lactase produced from soil bacteria. Research Journal of Recent Sciences, 2(8), 92-94, **2013**. Manisha Maity, Sayantani Sanyal, **Jayati Bhowal**, D.K. Bhattacharyya.
19. Utilization of Fruit Wastes in Producing Single Cell Protein. International Journal of Science, Environment and Technology 1(5), 430-438, **2012**. Amit Mondal, Smadrita Sengupta, **Jayati Bhowal**, D.K. Bhattacharyya.
20. Study on the effects of drying process on the composition and quality of wet okara. International Journal of Science, Environment and Technology 1(4), 319-330, **2012**. Samadrita Sengupta, Minakshi Chakraborty, **Jayati Bhowal**, D.K. Bhattacharyya.
21. Technology for Preparation of functional lipid and micronutrient enriched bhola bhetki fish (*Nibea soldado*) Spread. Open Access Scientific Reports, 1(6), 1-6, **2012**. Tanima Bhattacharya, **Jayati Bhowal**, Minakshi Ghosh, D.K. Bhattacharyya.
22. Adsorption behavior of Rhodamine B on *Rhizopus oryzae* Biomass. **Langmuir** 22 (17), pp 7265–7272, **2006**. Sujoy Kr Das, **Jayati Bhowal**, Akhil R. Das and Arun K Guha.
23. Infection of jute seedlings by the phytopathogenic fungus *Macrophomina phaseolina* mediated by endogenous lectin. **Research Journal of Microbiology** 1(1), 51-60, **2006**. **Jayati Bhowal**, Ghosh S., Chatterjee B. P. and Arun K Guha.
24. Purification and characterization of a sialc acid specific lectin from the phytopathogenic fungus *Macrophomina phaseolina*. **Carbohydrate Research**340 (12), Page: 1973-1982, **2005**. **Jayati Bhowal**, Arun K Guha and B. P. Chatterjee.
25. Mucin binding mitogeniclectin from fresh water Indian gastropod *Belamyia bengalensis*: purification and molecular characterization**. Archives of Biochemistry and Biophysics**, 421(1), 125-134, **2004**. S. Banerjee, S. Chaki, **J. Bhowal** and Bishnu P. Chatterjee.
26. Nutritional influence on the development and specific production of extracellular hemagglutinin from the phytopathogenic fungus *Fusarium udum.* Biochemical archives, 15(1), 75-80, **1999**. **Jayati Bhowal**, Ghosh S., Bishnu P. Chatterjee and Arun K. Guha.
27. Influence of carbon and nitrogen concentration on hemagglutinin production by phytopathogenic fungus *Macrophomina phaseolina.* Biochemical Archives, 15(4), 291-296, **1999**. **Jayati Bhowal**, Ghosh S., Bishnu P. Chatterjee and Arun K. Guha.

* **National**

1. Antioxidant properties of aqueous and organic extracts of whole fat rice bran and defatted rice bran. Journal of Lipid Science Technology, 43(3), 95-101, **2011**. Moumita Ghosh, Minakshi Ghosh, D.K. Bhattacharya and Jayati Bhowal.
2. Purification and characterization of an extracellular agglutinin from *Tricophyton rubrum* with specificity towards sialic-acid containing glycoconjugates. **Indian Journal of Biochemistry and Biophysics,** 41, 81-88, **2004**. J. Bhowal, Aryya Mitra, Subhasis Banerjee, Sikha Sikdar, Arun K. Guha and Bishnu P. Chatterjee.
3. **Ruma Dutta, Manisha Maity, and Jayati Bhowal** (2020). Production Of Medium Chain Fatty Acid Rich Single Cell Oil Using Whole De-Oiled Mustard Meal From Soil Fungus. *Indian Journal of Biochemistry & Biophysics*. (Accepted).

**CONFERENCE PAPER**

1. Production of microbial color from soil microbes for food use. **Materials Today: Proceedings, Elsevier**, (3), 3388-3402, **2016**. Sucharita Chatterjee, **Jayati Bhowal**.
2. Hypolipidemic Effects of Soy Yogurt Fortified with Antioxidant Rich Vegetable Oil on Albino Mice Fed High Cholesterol Diet. **Materials Today: Proceedings, Elsevier**, (3), 3222-3237, **2016**. Samadrita Sengupta, Riddhi Goswami, Srabanti Basu, **Jayati Bhowal**.

**Book chapters**

1. **Sayari Majumdar and Jayati Bhowal** (2020). Lecture Notes in Bioengineering, Chapter 27: “Value Addition of Agricultural Wastes for Improved Production of Industrially Important Enzymes by Employing Co-Cultivation of Fungi” in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.
2. **Ruma Dutta, Jayati Bhowal, and Dipak. K. Bhattacharyya** (2020). Lecture Notes Bioengineering, Chapter 6: “Fungal Production of Single Cell Oil Using Defatted Oil Seed Meal as Feedstock” in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.
3. **Manisha Maity, D. K. Bhattacharyya, and Jayati Bhowal** (2020). Lecture Notes Bioengineering, Chapter 6: “Production of lactose free cheese using partially purified β-galactosidase from *Enterobacter aerogenes* st KCTC2190” in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.
4. **Saheli Ghosal, D. K. Bhattacharyya, and Jayati Bhowal** (2020). Lecture Notes Bioengineering, Chapter 12: “Effect of *Saccharomyces cerevisiae* Fermentation Process on the Phenolic Content, Flavonoid Content and Antioxidant Properties of Flaxseed” in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.
5. **Sucharita Sengupta and Jayati Bhowal** (2020). Lecture Notes Bioengineering, Chapter 13: “Study on the antioxidant and cytotoxic properties of pyocyanin extracted from *Pseudomonas aeruginosa”* in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.
6. **Debarati Roy and Jayati Bhowal** (2020). Lecture Notes Bioengineering, Chapter 2: “Bio-conversion of mandarin orange peels by *Aspergillus oryzae* and by *Penicillium sp.*” in the book “Advances in Bioprocess Engineering and Technology” by Springer Nature.

**SEMINAR/CONFERENCE**

**International**

1. Value addition of agricultural wastes for improved production of industrially important enzymes by employing co-cultivation of fungi, **Sayari Majumdar, Jayati Bhowal**. International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
2. Fungal Production of Single Cell Oil Using Defatted Oil Seed Meal as Feedstock, **Ruma Dutta, Jayati Bhowal, and Dipak. K. Bhattacharyya.** International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
3. Production of lactose free cheese using partially purified β-galactosidase from *Enterobacter aerogenes* st KCTC2190, **Manisha Maity, D. K. Bhattacharyya, and Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
4. Effect of *Saccharomyces cerevisiae* Fermentation Process on the Phenolic Content, Flavonoid Content and Antioxidant Properties of Flaxseed, **Saheli Ghosal, D. K. Bhattacharyya, and Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
5. Study on the antioxidant and cytotoxic properties of pyocyanin extracted from *Pseudomonas aeruginosa,* **Sucharita Sengupta and Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
6. Bio-conversion of mandarin orange peels by *Aspergillus oryzae* and by *Penicillium sp.*, **Debarati Roy and Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology **2020**, 20-22 January organized by Department of Biotechnology and Department of Chemical EngineeringHeritage Institute of Technology, Kolkata.
7. Mono-culture and co-culture cultivation of cauliflower wastes for lignocellulosic degrading enzymes production, **Sayari Majumder, DK Bhattacharya, Jayati Bhowal**. International Food Conference IFCoN **2018**, 12-15th December organized by AFSTI at CFTRI Mysore.
8. Application of beta-galactosidase from *Enterobacter aerogenes* st KCTC2190 in processing low lactose milk and whey, **Manisha Maity, DK Bhattacharya, Jayati Bhowal**. International Food Conference IFCoN **2018**, 12-15th December organized by AFSTI at CFTRI Mysore
9. Studies on the development and properties of biocolor for food use by **Sucharita Sengupta, Jayati Bhowal.** Biosangam- International Conference on Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology, organized by Department of Biotechnology, Motilal Nehru National Institute of Technology (MNNIT), Allahabad, **2018**.
10. 'Studies on the changes of flavor constituents during microbial spoilage of mandarin orange (*Citrus reticulata*) by **Debarati Roy, Jayati Bhowal.** Biosangam- International Conference on Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology, organized by Department of Biotechnology, Motilal Nehru National Institute of Technology (MNNIT), Allahabad, **2018**.
11. Studies of Proximate Composition, Functional Properties, Phytochemical Screening and Antioxidant activities of Defatted-Raw, Fermented and Germinated Flax Seed Powder by **Saheli Ghoshal, Jayati Bhowal.** Biosangam- International Conference on Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology, organized by Department of Biotechnology, Motilal Nehru National Institute of Technology (MNNIT), Allahabad, **2018**.
12. Value addition of agroresidues through xylooligosaccharade production and its application in prebiotics by **Sayari Majumdar, Jayati Bhowal.** International Conference on Global Trends in Pure and Applied Chemical Sciences, organized by SRM University, Ghaziabad, UP, 8th-9th December, **2017**.
13. Screening, isolation and characterization of β Galactosidase from soil *Enterobacter sp.* by **Manisha Maity, Jayati Bhowal.** International Conference on Global Trends in Pure and Applied Chemical Sciences, organized by SRM University, Ghaziabad, UP, 8-9 December, **2017**.
14. Production of Single Cell protein from food wastes by **Ankita Chakraborty, Jayati Bhowal.** International Conference on Global Trends in Pure and Applied Chemical Sciences, organized by SRM University, Ghaziabad, UP, 8-9 December, **2017**.
15. Production of low calorie microbial lipid by **Ruma Datta, Jayati Bhowal.** International Conference on Global Trends in Pure and Applied Chemical Sciences, organized by SRM University, Ghaziabad, UP, 8-9 December, **2017**.
16. **C**ultivation of oyster mushroom (*Pleurotus ostreatus*) for the production of value added products by **Bhaswati Goswami, Jayati Bhowal.** International Conference on Global Trends in Pure and Applied Chemical Sciences, organized by SRM University, Ghaziabad, UP, 8-9 December, **2017**.
17. Exploration On Bioflavour From Oranges Of Darjeeling Hill, Eastern Himalaya by **Debarati Roy, Jayati Bhowal.** First Food Chemistry Conference - Shaping the Future of Food Quality, Health and Safety, organized by Elsevier, **Amsterdam, Netherlands,** 30 October-1 November, **2016.**
18. Hypolipidemic effects of soy yogurt fortified with antioxidant rich vegetable oil on albino mice fed high cholesterol diet by **Samadrita Sengupta, Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology organized by Heritage Institute of Technology, Kolkata, Jan 20-22, **2016**.
19. Production of Microbial Color from soil microbes for food use by **Sucharita Chatterjee, Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology organized by Heritage Institute of Technology, Kolkata, 20-22 January, **2016**.
20. Studies on Screening, Isolation & Biochemical Characterization of Lipase Producing Bacteria from Soil by **Upasika Datta, Jayati Bhowal.** International Conference on Advances in Bioprocess Engineering and Technology organized by Heritage Institute of Technology, Kolkata, 20-22 January, **2016**.
21. Optimization of Parameters for the Production of Protein Hydrolysate from Edible Oyster Mushroom (*Pleurotus ostreatus*) by **Bhaswati Goswami, Jayati Bhowal**. 4th International Conference and Exhibition on Food Processing and Technology organized by OMICS Group International, **London, UK,** 10-12 August, **2015.**
22. Effects of Nano Protein on Properties of Non-Dairy Yogurt by **Samadrita Sengupta, Jayati Bhowal.** International Conference On 3s Safety, Security And Sustainability: Innovations In Food And Bioprocess Industries organized by Department Of Food Technology and Biochemical Engineering, Jadavpur University, 27-28 February, **2015**.
23. Study on enzymatic saccharification of Cauliflower waste(s) by **Sayari Majumdar, Jayati Bhowal.** International Conference On 3s Safety, Security And Sustainability: Innovations In Food And Bioprocess Industries organized by Department Of Food Technology and Biochemical Engineering, Jadavpur University, 27-28 February, **2015**.

**National**

1. Hepatoprotective effect of gamma-linolenic acid containing soy yoghurt against cholesterol induced liver damage in swiss albino mice” by **Samadrita Sengupta, Jayati Bhowal.** 70th Annual Convention and National Conference on the Process and Products Development For Better Economy Benefits of the Fats and Oil Industry, organized by Oil Technologists’ Association of India held at Central Glass & Ceramic Research Institute, Kolkata, 21-22 November, **2015**.
2. Technology of Production of Synbiotic Dahi by **Samadrita Sengupta, Jayati Bhowal.** 20th West Bengal State Science and Technology Congress organized by held at BESU, Shibpur, 28 February-2 March, **2013**.
3. A Novel Approach for Making Soy Yogurt Containing Rice Bran Oil and Sesame oil as Superior Quality Probiotic Yogurt by **Samadrita Sengupta, Jayati Bhowal.** 67th Annual convention and International conference and Expo on Oils and Fats organized by Oil Technologists’ Association of India held at ITC Maratha, Mumbai, 23-24 November, **2012**.