Dr. Shilpi Ghosh

M.Sc., Ph.D

Present Affiliation

Professor

Department of Biotechnology

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Subject Specialization

Biochemistry and Molecular Biology

Research Interests

Microbial Enzymes of Industrial Importance

Biological evaluation of phytochemicals and their derivatives.

Plant Molecular Biology

Research Guidance

Ph.D: Awarded-06, Ongoing-07

M.Sc Dissertation: 32

Professional Experience

Assistant Professor, Department of Biotechnology, 2004-2016

Associate Professor, Department of Biotechnology, 2016-2019

Professor, Department of Biotechnology, NBU, 2019 - till date

Administrative Experience

Head, Department of Food Technology, NBU (July, 2018 - June 2017 & Sept, 2019 - October, 2020)

Head, Department of Biotechnology, NBU (December 2016 - December, 2018)

Head, Department of Microbiology, NBU (March, 2012 - December, 2016)

Superintendant, Rani Bhawani PG Girl's Hostel, NBU (Sept., 2008 - June, 2019)

Fellowships and Awards ·

Summer Research Fellowship for Teachers, INSA, NASI, IASc.

DBT- Research Associate in Bose Institute, Kolkata

Post Doctoral Research Trainee in University of Liepzig, Germany

CSIR-Junior & Senior Research Fellowship

Selected Publications

Rai V, Pogu SV, Bhatnagar R, Bomzan P, Dutta A, Mandal A, Roy MN, Kumar A, Ghosh S (2022) Biological evaluation of a natural steroid ester, Stigmasta-5(6), 22(23)-dien-3-beta-yl acetate isolated from the Himalayan herb *Astilbe rivularis* as potential antitumor agent. *Chemico-Biological Interactions* 360: 109935. IF:5.19

Mahanty A, Giri S, Kar A, Ghosh S (2022) Biocatalytic pretreatment of rice straw by ligninolytic enzymes produced by newly 3 isolated *Micrococcus unnanensis* strain B4 for downstream cellulolytic saccharification. *Journal of General and Applied Microbiology*, DOI:10.2323/jgam.2022.01.005. IF: 1.50

Kumar G, Saha SP, Ghosh S, Mondal PK (2021) Artificial neural network-based modelling of optimized experimental study of xylanase production by *Penicillium citrinum* xym2. *Journal of Process Mechanical Engineering* 1–9, DOI: 10.1177/09544089211064153. IF: 1.60.

Singh KK, Saha SP, Kadiravana RC, Mazumdar D, Rai V, Ghosh S (2021) Ammonium metabolism in *Selaginella bryopteris* in response to dehydration-rehydration and characterisation of desiccation tolerant, thermostable, cytosolic glutamine synthetase from plant. *Functional Plant Biology* 48:257-267. IF: 3.10.

Lepcha K, Basak A, Kanoo S, Sharma P, Puja BK, Ghosh S (2021) Thermoxylanolytic and thermosaccharolytic potential of a heat adapted bacterial consortium developed from goat rumen contents. *Frontiers in Energy Research*, Section Bioenergy and Biofuels, 9:755779. doi: 10.3389/fenrg.2021.755779. IF: 4.02

Gavande PV, Basak A, Sen S, Lepcha K, Murmu N, Rai V, Mazumdar D, Saha SP, Das V, Ghosh S (2021) Functional characterization of thermotolerant microbial consortium for lignocellulolytic enzymes with central role of Firmicutes in rice straw depolymerization. *Nature Scientific Reports* 11:3032. IF: 5.13

Bomzan P, Roy N, Sharma A, Rai V, Ghosh S, Kumar A, Roy MN (2021) Molecular encapsulation study of indole-3-methanol in cyclodextrins: Effect on antimicrobial activity and cytotoxicity. *Journal of Molecular Structure* 1225:129093. IF: 3.20

Mazumdar D, Saha SP, Ghosh S (2021) RSM based optimization of plant growth promoting rhizobacteria and nitrogen dosage for enhanced growth and yield of mustard (*Brassica campestris* L.) *Journal of Plant Nutrition* 44:15, 2228-2244. IF:1.69

Dey S, Murmu N, Bose M, Ghosh S, Giri B (2021) Obesity and chronic leptin resistance foster insulin resistance: An analytical overview. *BLDE Univ J Health Sci* 6:7-21.

Adhikari A, Ghosh S, Sen M, Adhikari R (2020)Models of transmission of COVID-19 with time under the influence of meteorological determinants. medRxiv preprint doi: https://doi.org/10.1101/2020.05.26.20113985

Mazumdar D, Saha SP, Ghosh S (2020) Isolation, screening and application of a potent PGPR for enhancing growth of chickpea as affected by nitrogen level. *International Journal of Vegetable Science* 26:4, 333-350. IF:1.0

Rai V, Kumar A, Das V, Ghosh S (2019) Evaluation of chemical constituents and in vitro antimicrobial, antioxidant and cytotoxicity potential of rhizome of *Astilbe rivularis* (Bodho-okhati), an indigenous medicinal plant from Eastern Himalayan region of India. *BMC Complementary and Alternative Medicine* 19:200. IF:3.02

Lepcha K, Ghosh S (2018) Glycoside hydrolases from a thermophilic microbial consortium and their implication in the saccharification of agroresidues. *Biocatalyst and Agricultural Biotechnology*15:160-166. Cite Score: 3.90

Moushree Pal Roy, Subhabrata Datta, Shilpi Ghosh (2017) A novel extracellular low-temperature-active phytase from Bacillus aryabhattai RS1 with potential application in plant. *Biotechnology Progress* 33: 633-641. IF: 2.68

Ghosh S, Mukhopadhyay S, Sarkar M, Mandal A, Das V, Kumar A, Giri A (2017) Synthesis and biological evaluation of 2α-bromo dihydrobelulonic acid, as an inhibitor of human topoisomeraseIIα and HeLa cell proliferation. *Chemico-Biological Interactions* 268: 68-76. IF:5.19

Mandal A, Ghosh S, Ghosh A, Sil S, Bothra AK, Ghosh P (2016) 3-epihydroxy lup-20(29)-en-19(28)-olide: Partial synthesis, antitopoisomerase activity. *Medicinal Chemistry Research* 25:1087-1095. IF:1.98

Palroy M, Mazumder D, Datta S, Ghosh S (2016) Cloning and expression of phytase appA gene from *Shigella* sp.CD2 in *Pichia pastoris* and comparison of properties with recombinant enzyme expressed in *E.coli*. *Plos one* e0145745. IF: 3.24

Mandal A, Das V, Ghosh P, Ghosh S (2015) Anti-diabetic effect of friedelan triterpenoids in streptozotocin induced diabetic rat. *Natural Product Communications* 10:1683-1686. IF:1.0

Saha SP, Ghosh S (2014) Optimization of xylanase production by *Pennicillium citrinum* xym2 using response surface method ology and application in sac charification of agro-residues. *Biocatalyst and Agricultural Biotechnology* 3:188-196. Cite Score: 3.90

Majumder S, Naskar B, Ghosh S, Lee CH, Chang CH, Moulik SP, Panda AK (2014) Synthesis and characterization of surfactant stabilized nanocolloidal dispersion of silver chloride in aqueous medium. *Colloids and Surfaces A*: *Physicochem. Engineering Aspects* 443:156-163. IF: 4.53

Singh K K, Ghosh S (2013) Regulation of glutamine synthetase isoforms in two differentially drought-tolerant rice (Oryza sativa L.) cultivars under water deficit conditions. *Plant Cell Report* 32:183-193. IF: 4.57

Sarkar P, Rai AR, Ghosh S (2013) Degradation of aromatic petroleum hydrocarbon (BTEX) by a solvent tolerant bacterial consortium. *Journal of Urban and Environmental enginnering* 7: 274-279

Chatterjee J, Patra B, Mukherjee R, Basak P, Mukherjee S, Ray S, Bhattacharyya S, Maitra S, Ghosh Dastidar K, Ghosh S, Sen Gupta S, Majumder AL (2013) Cloning, characterization and expression of a chloroplastic fructose-1,6-bis phosphatase from Porteresia coarctata conferring salt tolerance in transgenic tobacco. *Plant Cell Tissue and Organ Culture* 114:395–409. IF: 2.73

Pal Roy M, Poddar M, Singh K K, Ghosh S (2012) Purification, characterization and properties of phytase from *Shigella* sp. CD2. *Indian Journal of Biochemistry and Biophysics* 49:266-271. IF:1.92

Mandal A, Ghosh S, Bothra AK, Nanda AK, Ghosh P (2012) Synthesis of friedelan triterpenoid analogs with DNA topoisomerase IIa inhibitory activity and their molecular docking studies. *European Journal of Medicinal Chemistry* 54: 134-143, IF: 6.51

Ghosh S (2010) Effect of light on appearance of glutamine synthetase in Pennisetum glaucum L. (R. Br.) *Journal of Plant Biochemistry and Biotechnology* 19: 239-243. IF:1.20

Das B, Goswami L, Ray S, Ghosh S, Bhattacharya S, Das S, Majumder AL (2006) Agrobacterium- mediated transformation of *Brassica juncea* with a cyanobacterial (*Synechocystis* PCC 6803) delta-6 desaturase gene leads to production of γ-linolenic acid. *Plant Cell Tissue Organ Culture* 86:219-231.IF: 2.73

Ghosh S (2004) Partial purification, characterization and properties of two isoforms of glutamine synthetase from *Pennisetum glaucum* L. leaves. *Indian Journal of Biochemistry and Biophysics* 41: 288-293. IF:1.92

Ray RS, Roy S, Ghosh S, Kumar M and Chatterjee M (2004) Suppression of cell proliferation, DNA-protein cross-links and induction of apoptosis in chemical rat mammary carcinogenesis. *Biochimica et Biophysica Acta* 1675(1-3):165-73. IF: 4.73

Chatterjee A, Majee M, Ghosh S and Majumder A L (2004) Sll 1722, an unassigned open reading frame of Synechocystis PCC 6803, codes for L-myo-inositol 1-phosphate synthase. *Planta* 218: 989-998.IF: 4.31

Ghosh S, Bagchi and Majumder AL (2001) Chloroplast fructose-1,6-bisphosphatase from *Oryza sativa* differs in salt tolerance property from the Porteresia enzyme and is protected by osmolytes. *Plant Science* 160: 1171-1181, IF: 4.72

Book Chapters and Reviews

Dey S, Murmu N, Bose M, Ghosh S, Giri B (2021) Obesity and chronic leptin resistance foster insulin resistance: An analytical overview. BLDE University Journal of Health Sciences 6: 7-21.

Ghosh S, Lepcha K, Basak A, Mahanty A (2020) Thermophiles and thermophilic hydrolases. In:Physiological and Biotechnological Aspects of Extremophiles, Ed: Salwan R and Sharma V, Academic Press, London, UK, pp:21-37.

Majumder AL, Hait NC, Deb I, Majee M, Chatterjee A, Ghosh Dastidar K, Ghosh S, Pattanaik SK (2003) "L-myo inositol 1-phosphate synthase: an ancient protein with diverse Function". In: Molecular Insight in Plant Biology. Chapter-5, pp:67-76 .Nath P, Mattu AK, Ranade SA, Weil JH. Oxford & IBH Publishing Co. Pvt. Ltd; New Delhi, India

Research Projects

Title of project	Duration	Sponsoring Agency
Isolation, Characterization, Molecular Cloning and Sequencing of diverse Phytase genes from Rhizosphere and Wood Decomposing Bacteria (PI)	Apr 2007-Mar 2010	University Grant Commission, New Delhi
Glutamine synthetase isoenzymes in rice plants: Differential regulation and organ specific expression in relation to drought stress and comparison with resurrection plant isoforms.(PI)	May,2007-May, 2010	Council of Scientific & Industrial Research, New Delhi

Cloning and expression of a novel microbial phytase in *Pichia pastoris* for extracellular secretion and optimization of its production: An attempt to develop a commercial phytase production system (PI)	Apr 2012 - Mar 2015	University Grant Commission, New Delhi
Evaluation of halogenated triterpenoid for anticancer properties	2013 - 2014	University of North Bengal
Physicochemical studies of Bacterial /other membranous interfaces with nonsteroidal anti-inflamatory drugs (Co-PI)	May 2014 - Apr 2017	DBT, New Delhi
Bioprospecting Thermophillic lignocellulose deconstructing microbial consortium: Mining of cellulolytic glycoside hydrolases for biotechnology	Apr 2015 - Mar 2018	DST, New Delhi
Studies on the role of endophytic diazotrophs in nitrogen assimilation of rice plant (*Oryza sativa* L.)	2021-2022	University of North Bengal

Patent:

Title of the invention : A lipophilic compound having anti-cancer, anti-bacterial and anti-fungal properties (Under Examination)