



DR. SUMAN KUMAR HALDER

M.Sc.(Microbiology), Ph.D. (Microbiology)

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PERSONAL DETAILS

Father's name:
(Late) Santa Kumar Halder

Mother's name:
Purabi Halder

DOB:
14/08/1985

Gender:
Male

Nationality:
Indian

Religion:
Hindu

Marital Status:
Married

Languages:
Bengali, English, Hindi

Address:
Village + PO- Barunda,
PS- Bagnan, Dist- Howrah,
Pin- 711303, West Bengal, India

Academia

- Doctor of Philosophy** *Ph.D. in Microbiology*
Year: 2015
Thesis title: Production, Purification and Characterization of Chitinase from a New Bacterial Isolate of Aeromonas hydrophila
Vidyasagar University, West Bengal, India
- Post-Graduation** *Master of Science (M.Sc.) in Microbiology*
Year: 2008
1st class 1st in the University (Gold Medalist)
Vidyasagar University, West Bengal, India
- Graduation** *Bachelor of Science (B.Sc.) in Microbiology*
Year: 2006
1st class 1st in the University (Gold Medalist)
Vidyasagar University, West Bengal, India
- Higher Secondary** *Science [Combinations: Bengali, English, Bio Sciences, Physics, Chemistry, and Mathematics (optional)]*
(10+2th std.)
Year: 2003
1st division
West Bengal Council of Higher Secondary Education
- Secondary** *General [Bengali, English, Life Science, Physical Science, Mathematics, Geography, History, and Work education (optional)]*
(Madhyamik, 10th std.)
Year: 2001
1st division (with star)
West Bengal Board of Secondary Education

All India-based Examination: Qualified **GATE-2009** and **GATE-2010** examination

Qualified **UGC-CSIR NET-2011** (December) examination

Honors/Awards

- Young Achiever Award-2023** by Institute of Scholars, Bengaluru, Karnataka, India for a publication in Environmental Science & Pollution Research, Springer.
- Research Excellence Award-2019** by Institute of Scholars, Bengaluru, Karnataka, India for a publication in Food Chemistry, Elsevier.
- Certificate of Highly cited research** by the Editor, Biocatalysis and Agricultural Biotechnology, Elsevier in 2016.
- INSPIRE Fellowship** by Department of Science and Technology (DST), Govt. of India in 2010.
- UGC-Project Fellowship** in UGC-sponsored project in 2008 by University Grants Commission, New Delhi, India.
- Endowment MEDAL** by Vidyasagar University for ranking **1st class first** in M.Sc. in Microbiology in 2008.
- GOLD CENTERED SILVER MEDAL** by Vidyasagar University for ranking **1st class first** in M.Sc. in Microbiology in 2008.
- GOLD CENTERED SILVER MEDAL** by Vidyasagar University for ranking **1st class first** in B.Sc. in Microbiology in 2006.



Research Exposures

- DST-INSPIRE Fellow (JRF & SRF) For PhD**
(24.09.2010-31.01.2014)

Title of work/thesis: Production, Purification and Characterization of Chitinase from a New Bacterial Isolate of *Aeromonas hydrophila*

Supervisor(s): Prof. Bikas Ranjan Pati & Prof. Keshab Chandra Mondal, Department of Microbiology, Vidyasagar University, Midnapore, West Bengal
- UGC-Major Research Project Fellow**
(22.08.2008-23.09.2010)

Title of work/thesis: Production of Chitinase and Chitosans from Shells of Crustacean through Bacterial Fermentation

Supervisor(s): Prof. Bikas Ranjan Pati & Prof. Keshab Chandra Mondal, Department of Microbiology, Vidyasagar University, Midnapore, West Bengal
- M.Sc. student trainee**
(15.02.2008-15.05.2008)

Title of work/thesis: Cloning and Expression of Early Genes of D29 Mycobacteriophage and Study the Expression Pattern in *Mycobacteria*

Supervisor: Prof. Sujoy K. DasGupta, Department of Microbiology, Bose Institute, Kolkata, West Bengal



Teaching experience

Assistant Professor (on contract) at Department of Microbiology, Vidyasagar University, Midnapore, West Bengal from 03/02/2014 to 22/02/2024.

Assistant Professor at Department of Microbiology, Vivekananda Mahavidyalaya, Burdwan, West Bengal from 23/02/2024 to till date.



Research Guidance

Ph.D. thesis supervision: 04 (ongoing) M.Phil thesis supervision: 03 (Awarded)



Latest Journal Publications

- Goswami D, Mondal S, Hilaluddin, Hor PK, Santra S, Jana H, Gauri SS, **Halder SK**, Mondal KC (2024) Bioprospecting of probiotic bacteria from traditional food of high-altitude Himalayan region. *Food Bioscience*, 57 (2024) 103257.
- Mondal S, **Halder SK**, Mondal KC (2023) State-of-art engineering approaches for ameliorated production of microbial lipid. *Systems Microbiology and Biomanufacturing*, 4 (2024) 20–38.
- Hilaluddin, Mondal S, Rakhshat S, Pal K, Santra S, Goswami D, Mondal SP, **Halder SK**, Mondal KC (2023) Production of glutathione from probiotic *Bacillus amyloliquefaciens* KMH10 using banana peel extract. *Bioresource Technology*, 376 (2023)128910.
- Rakhshat S, Pal K, Mondal S, Jana A, Mondal KC, **Halder SK** (2023) Extraction of chitosan from biologically-derived chitin by bacterial chitin deacetylase: Process optimization and product quality assessment. *International Journal of Biological Macromolecules*, 244 (2023)125389.
- Sen K, Dutta S, **Halder SK**, Pati B, Goldar S, Patar S, Bharati DRS, Patsa R, Ghorai AK, Sarker K, Kumar R, Ray K, Borah TR, Ray SK, Barman AR (2023) Influence of cropping sequences on soil suppressive/conduciveness against *Sclerotium rolfsii* in different agro-climatic zones of West Bengal, India, *Journal of Environmental Biology*, 44: 753-764.
- Sil S, Ghosh A, Kar TK, **Halder SK**, Chattopadhyay S (2023). *Saccharomyces boulardii*, a novel yeast probiotic ameliorates metabolic syndrome associated with PCOS: A preliminary study. *Indian Journal of Physiology and Allied Sciences*, 75(3):14-19.

MEMBERSHIP:

- The Biotech Research Society, India (BRSI) : Life Member (LM 822)
- Association of Microbiologist of India (AMI) : Life Member (3182-2013)

Sen K, Roy, MD, **Halder SK**, Murmu M, Pati BR, Islam SS, Barman AR, Mondal KC, Dutta S (2023) Effects of soil physico-chemical parameters on *Sclerotium rolfsii* suppressiveness. *Acta Biologica Szegediensis*, 67(1) 1–10.

Jana A, Kakkar N, **Halder SK**, Das AJ, Bhaskar T, Ray A, Ghosh D (2022) Efficient valorization of feather waste by *Bacillus cereus* IIPK35 for concomitant production of antioxidant keratin hydrolysate and milk-clotting metallo-serine keratinase. *Journal of Environmental Management*, 324 (2022)116380.

Pal K, Rakshit S, Mondal S, Jana A, Mondal KC, **Halder SK** (2022) Reutilization of waste fungal biomass for concomitant production of proteochitinolytic enzymes and their catalytic products by *Alcaligenes faecalis* SK10. *Indian Journal of Experimental Biology*, 60 (09) 689-700.

Hor PK, Ghosh K, **Halder SK**, Mondal S, Mondal KC (2022) Evaluation of some effective potentialities of newly formulated rice fermented food using *Elephantopus scaber* L. rhizome as herbal starter. *Indian Journal of Experimental Biology*, 60 (09) 700-712.

Mondal S, Santra S, uddin H, Pal K, **Halder SK**, Chattopadhyay S, Mondal KC (2022) Application of Phytochemicals to Combat Fungal Pathogens of Pulses: An Approach toward Inhibition of Fungal Propagation and Invasin Activity. *Journal of Agricultural and Food Chemistry*, 70: 7662–7673.

Hor PK, Pal S, Mondal J, **Halder SK**, Ghosh K, Santra S, Ray M, Goswami D, Chakrabarti S, Singh S, Dwivedi SK, Takó M, Bera D, Mondal KC (2022) Antiobesity, Antihyperglycemic, and Antidepressive Potentiality of Rice Fermented Food Through Modulation of Intestinal Microbiota. *Frontiers in Microbiology*, 13:794503.

Mondal S, Biswal D, Pal K, Rakshit S, **Halder SK**, Mandavgane SA, Bera D, Hossain M, Mondal KC (2022) Biodeinking of waste papers using combinatorial fungal enzymes and subsequent production of butanol from effluent. *Bioresource Technology*, 353 (2022): 127078.

Mondal S, Santra S, Rakshit S, **Halder SK**, Hossain M, Mondal KC (2022) Saccharification of lignocellulosic biomass using an enzymatic cocktail of fungal origin and successive production of butanol by *Clostridium acetobutylicum*. *Bioresource Technology*, 343 (2022): 126093.

Mondal S, **Halder SK**, Mondal KC (2022) Tailoring in fungi for next generation cellulase production with special reference to CRISPR/CAS system. *Systems Microbiology and Biomanufacturing*, 2:113–129.

Hor PK, Goswami D, Ghosh K, Takó M, **Halder SK**, Mondal KC (2022) Preparation of rice fermented food using root of *Asparagus racemosus* as herbal starter and assessment of its nutrient profile. *Systems Microbiology and Biomanufacturing*, 2:147–156.

Mondal S, Mondal K, **Halder SK**, Thakur N, Mondal KC (2022) Microbial Amylase: Old but still at the forefront of all major industrial enzymes. *Biocatalysis and Agricultural Biotechnology*, 45 (2022) 102509.

Hor PK, Ghosh K, **Halder SK**, Soren JP, Goswami D, Bera D, Singh SN, Dwivedi SK, Parua (Mondal) S, Hossain M, Mondal KC (2021) Evaluation of nutrient profile, biochemical composition and anti-gastric ulcer potentialities of khambir, a leavened flat bread. *Food Chemistry*, 345 (2021) 128824.

Pal K, Rakshit S, Mondal KC, **Halder SK** (2021) Microbial decomposition of crustacean shell for production of bioactive metabolites and study of its fertilizing potential. *Environmental Science and Pollution Research*, 28:58915–58928.

Ghosh K, Adak A, **Halder SK**, Mondal KC (2021) Physicochemical Characteristics and Lactic Acid Bacterial Diversity of an Ethnic Rice Fermented Mild Alcoholic Beverage, Haria. *Frontiers in Sustainable Food Systems*, 5:680738.

Rakshit S, Mondal S, Pal K, Jana A, Soren JP, Barman P, Mondal KC, **Halder SK** (2021) Extraction of chitin from *Litopenaeus vannamei* shell and its subsequent characterization: an approach of waste valorization through microbial bioprocessing. *Bioprocess and Biosystems Engineering*, 44: 1943–1956.

Mondal S, Soren JP, Mondal J, Rakshit S, **Halder SK**, Mondal KC (2020) Contemporaneous synthesis of multiple carbohydrate debranching enzymes from newly isolated *Aspergillus fumigatus* SKF-2 under solid state fermentation: A unique enzyme mixture for proficient saccharification of plant bioresources. *Industrial Crops and Products*, 150: 112409.

Dutta S, Jana TK, **Halder SK**, Maiti R, Dutta A, Kumar A, Chatterjee K (2020) Zn₂Al-CO₃ Layered Double Hydroxide: Adsorption, Cytotoxicity and Antibacterial Performances. *ChemistrySelect*, 5(20): 6162–6171.

CONFERENCE PRESENTATION

International & National: 18

- Soren JP, **Halder SK**, Mondal J, Hor PK, Mohapatra PKD, Mondal KC (2020) A permissive approach for optimization of L-glutaminase production using wheat bran as supporting substrate and assessment of its cytotoxic potentialities. *Acta Biologica Szegediensis*, 64(1):1-10.
- Bhargava D, **Halder SK**, Kar S, Bista PR (2020) Conjunctival Bacterial Flora And Their Antibiogram: A Study on The Patients Attending National Medical College & Teaching Hospital of Birgunj, Nepal. *International Journal of Pharmaceutical Research*, Jan - Jun 2020, Supplementary Issue 1: 2559-2566.
- Banik A, Ghosh K, Pal S, **Halder SK**, Ghosh C, Mondal KC (2020) Biofortification of multi-grain substrates by probiotic yeast. *Food Biotechnology*, 34(4):283–305.
- Jana A, **Halder SK**, Dasgupta D, Hazra S, Mondal P, Bhaskar T, Ghosh D (2020) Keratinase Biosynthesis from Waste Poultry Feathers for Proteinaceous Stain Removal. *ACS Sustainable Chemistry & Engineering*, 8(48): 17651-17663.
- Santra S, Das SG, **Halder SK**, Ghosh K, Banerjee A, Panda AK, Mondal KC (2020) Structure-based assortment of herbal analogues against spike protein to restrict COVID-19 entry through hACE2 receptor: An in-silico approach. *Acta Biologica Szegediensis*, 64(2):159-171.
- Mukherjee R, Paul T, Soren JP, **Halder SK**, Mondal KC, Pati BR, Das Mohapatra PK (2019) Acidophilic α -Amylase Production from *Aspergillus niger* RBP7 Using Potato Peel as Substrate: A Waste to Value Added Approach. *Waste and Biomass Valorization*, 10(4): 851–863.
- Banik A, Mondal J, Rakshit S, Ghosh K, Sha SP, **Halder SK**, Ghosh C, Mondal KC (2019) Amelioration of cold-induced gastric injury by a yeast probiotic isolated from traditional fermented foods. *Journal of Functional Foods*, 59: 164-173.
- Mukherjee R, Paul T, **Halder SK**, Soren JP, Banerjee A, Mondal KC, Pati BR, Das Mohapatra PK (2018). Characterization of an acidophilic α -amylase from *Aspergillus niger* RBP7 and study of catalytic potential in response to nutritionally important heterogeneous compound. *Acta Biologica Szegediensis*, 62(1): 75-82.
- Halder SK** (2018). Insight of Chitinolytic Cascade of Marine Bacteria: A Vista for Material Cycling and Valorization. *Acta Scientific Microbiology*, 1(9): 01-03.
- Bhargava D, **Halder SK**, Mondal KC, Kar S (2018). Incidence and predominance of dermatophytes among the patients with superficial skin infection in a tertiary care centre in Birgunj. *International Journal of Pharmacy and Biological Sciences*, 8(3): 469-476.
- Dutta SR, Gauri SS, Ghosh T, **Halder SK**, DasMohapatra PK, Mondal KC, Ghosh AK (2017). Elucidation of structural and functional integration of a novel antimicrobial peptide from *Antheraea mylitta*. *Bioorganic & Medicinal Chemistry Letters*, 27(8):1686–1692.
- Halder SK**, Jana A, Paul T, Das A, Ghosh K, Pati BR, Mondal KC (2016) Purification and biochemical characterization of chitinase of *Aeromonas hydrophila* SBK1 biosynthesized using crustacean shell. *Biocatalysis and Agricultural Biotechnology*, 5: 211–218.
- Roy S, **Halder SK**, Banerjee D (2016) Multi-Response Optimization of granaticinic acid production by endophytic *Streptomyces thermoviolaceus* NT1, using response surface methodology. *Bioengineering*, 3(3),19, 1-11.
- Dutta SR, Gauri SS, Mondal B, Vemula A, **Halder SK**, Mondal KC, Ghosh AK (2016) Screening of antimicrobial peptides from hemolymph extract of tasar silkworm *Antheraea mylitta* against urinary tract and wound infecting multidrug-resistant bacteria. *Acta Biologica Szegediensis*, 60(1):49-55.
- Sahoo DK, **Halder SK**, Thatoi H, Das Mohapatra PK (2016) Potentiality of *Bacillus weihenstephanensis* PKD5 keratinase for eco-friendly dehairing of skins and hide. *Biotechnology: An Indian Journal*, 12(12):119.
- Jena H, **Halder SK**, Soren JP, Takó M, Mondal KC (2016) Valorization of wheat bran for cost-effective production of cellulolytic enzymes by *Aspergillus fumigatus* SKH2 and utilization of the enzyme cocktail for saccharification of lignocellulosic biomass. *Acta Biologica Szegediensis*, 60(2):129-137.
- Ghosh K, Ray M, Adak A, Dey P, **Halder SK**, Das A, Jana A, Parua Mondal S, Das Mohapatra PK, Pati BR, Mondal KC (2015) Microbial, saccharifying and antioxidant properties of an Indian rice based fermented beverage. *Food Chemistry*, 168:196-202.
- Paul T, **Halder SK**, Das A, Ghosh K, Mandal A, Payra P, Barman P, Das Mohapatra PK, Pati BR, Mondal KC (2015) Production of chitin and bioactive materials from Black tiger shrimp (*Penaeus monodon*) shell waste by the treatment of bacterial protease cocktail. *3 Biotech*, 5(4):483–493.

- Das A, Paul T, Ghosh P, **Halder SK**, Das Mohapatra PK, Pati BR, Mondal KC (2015) Kinetic Study of a Glucose Tolerant β -Glucosidase from *Aspergillus fumigatus* ABK9 Entrapped into Alginate Beads. *Waste and Biomass Valorization*, 6(1):53-61.
- Ghosh K, Ray M, Adak A, **Halder SK**, Das A, Jana A, Parua (Mondal) S, Vágvölgyi C, Das Mohapatra PK, Pati BR, Mondal KC (2015) Role of probiotic *Lactobacillus fermentum* KKL1 in the preparation of a rice based fermented beverage. *Bioresource Technology*, 188:161–168.
- Paul T, Mandal A, Mandal SM, Ghosh K, Mandal AK, **Halder SK**, Das A, Maji SK, Kati A, Das Mohapatra PK, Pati BR, Mondal KC (2015) Enzymatic Hydrolyzed Feather Peptide, a Welcoming Drug for Multiple-Antibiotic-Resistant *Staphylococcus aureus*: Structural Analysis and Characterization. *Applied Biochemistry and Biotechnology*, 175:3371–3386.
- Jana A, Adak A, **Halder SK**, Das A, Paul T, Mondal KC, Das Mohapatra PK (2015) A new strategy for improvement of tamarind seed based chicken diet after microbial detannification and assessment of its safety aspects. *Acta Biologica Szegediensis*, 59(1):1-9.
- Sahoo DK, **Halder SK**, Das A, Jana A, Paul T, Thatoi H, Mondal KC, Das Mohapatra PK (2015) Keratinase production by *Bacillus weihenstephanensis* PKD5 in solid-state fermentation and its milk clotting potential. *Indian Journal of Biotechnology*, 14(2):200-207.
- Jana A, **Halder SK**, Ghosh K, Paul T, Vágvölgyi C, Mondal KC, Das Mohapatra PK (2015) Tannase immobilization by chitin-alginate based adsorption-entrapment technique and its exploitation in fruit juice clarification. *Food and Bioprocess Technology*, 8(11):2319–2329.



Latest Book chapters:

- Subhadeep Mondal S, **Halder SK**, Mondal KC (2023) Microalgal farming for biofuel production: Extraction, conversion, and Characterization. Book: *Microalgal Biomass for Bioenergy Applications*. ISBN: 978-0-443-13927-7. Page 43-80.
- Rakshit S, Pal K, Mondal KC, **Halder SK** (2023) The role of chitosan-based nanoparticles to reduce obesity: a glimpse. Book: *Nanotechnology and Human Health, Current Research and Future Trends*. ISBN: 978-0-323-90750-7. Page 309-331.
- Barman P, Pal K, **Halder SK**, Bandyopadhyay P (2022) The Commercial Perspective of Probiotics and Bioremediating Components in Aquaculture Pond Management: A Case Study. Book: *Prebiotics, Probiotics and Nutraceuticals*. Springer, Singapore. ISBN: 978-981-16-8989-5. Page 113–132.
- Pal S, Jana A, Mondal KC, **Halder SK** (2022) Omics Approach to Understanding the Microbial Diversity. Book: *Biotechnological Advances for Microbiology, Molecular Biology, and Nanotechnology: An Interdisciplinary Approach to the Life Sciences*, Apple Academic Press. ISBN: 9781771889995. Page 25-38.
- Mondal S, **Halder SK**, Mondal KC (2022) Revisiting soil-plant-microbes interactions: Key factors for soil health and productivity. Book: *Trends of Applied Microbiology for Sustainable Economy*, Academic Press. ISBN: 978-0-323-91595-3. Page 125-154.
- Mondal S, **Halder SK**, Thakur N, Mondal KC (2021) Carbohydratase. Book: *Biotechnology and Bioinformatics: Recent Trends*, Himalaya Publishing House. ISBN: 978-93-5495-467-2. Page 1-35.
- Rakshit S, **Halder SK**, Mondal KC (2020) Appraisal of Chitosan-Based Nanomaterials in Enzyme Immobilization and Probiotics Encapsulation. Book: *Nanomaterials and Environmental Biotechnology. Nanotechnology in the Life Sciences Book series*, Springer Nature Switzerland AG 2020. ISBN: 978-3-030-34544-0. Page 163-188.
- Banik A, **Halder SK**, Ghosh C, Mondal KC (2020) Enterococcal Infections, Drug Resistance, and Application of Nanotechnology. Book: *Nanostructures for Antimicrobial and Antibiofilm Applications. Nanotechnology in the Life Sciences Book series*, Springer Nature Switzerland AG 2020. ISBN: 978-3-030-40337-9. Page 417-445.
- Mondal S, **Halder SK**, Yadav AN, Mondal KC (2020) Microbial Consortium with Multifunctional Plant Growth-Promoting Attributes: Future Perspective in Agriculture. Book: *Advances in Plant Microbiome and Sustainable Agriculture, Functional Annotation and Future Challenges, Microorganisms for Sustainability Book series*, Springer Nature Singapore Pte Ltd. 2020. ISBN: 978-981-15-3204-7. Page 219-258.
- Kour D, Rana KL, Sachan SG, Kaur T, Yadav N, **Halder SK**, Yadav AN, Saxena AK (2020) Potassium solubilizing and mobilizing microbes: Biodiversity, mechanisms of solubilization, and biotechnological implication for alleviations of abiotic stress. Book: *New and Future Developments*

in Microbial Biotechnology and Bioengineering, Elsevier. ISBN: 978-0-12-820526-6, Pages 177-202.

Halder SK, Pal S, Mondal KC (2019) Biosynthesis of Fungal Chitinolytic Enzymes and Their Potent Biotechnological Appliances. Book: Recent Advancement in White Biotechnology Through Fungi. Vol. 1: Diversity and Enzymes Perspectives, Springer Nature Switzerland AG 2019. ISBN: 978-3-030-10480-1. Page 281-298.

Banik A, **Halder SK**, Ghosh C, Mondal KC (2019) Fungal Probiotics: Opportunity, Challenge, and Prospects. Book: Recent Advancement in White Biotechnology Through Fungi. Vol. 2: Perspective for Value-Added Products and Environments, Springer Nature Switzerland AG 2019. ISBN: 978-3-030-14846-1. Page 101-117.

Mondal S, **Halder SK**, Mondal KC (2019) Fungal Enzymes for Bioconversion of Lignocellulosic Biomass. Book: Recent Advancement in White Biotechnology Through Fungi. Vol. 3: Perspective for Sustainable Environments, Springer Nature Switzerland AG 2019. ISBN: 978-3-030-25505-3. Page 349-380.

Halder SK, Mondal KC (2018) Microbial Valorization of Chitinous Bioresources for Chitin Extraction and Production of Chito-Oligomers and N-Acetylglucosamine: Trends, Perspectives and Prospects. Book: Microbial Biotechnology, Volume 2. Application in Food and Pharmacology. Springer Nature Singapore Pte Ltd. ISBN: 978-981-10-7139-3. Page 69-107.

Halder SK (2016) Optimization of microbial bioprocesses through response surface methodology: current trends. Book: Health, nutrition and hygiene: the dynamics of social ecology in India. Kankabati Rishi Arabinda Rural Development and Social Welfare Institute with SHREELIPI, Medinipur, West Bengal. ISBN: 978-81-930138-1-6. Page 241-259.