

Tanmay Chaturvedi
Bioenergy and Bioproducts



Employment

Bioenergy and Bioproducts
The Faculty of Engineering and Science
Esbjerg, Denmark
1 Jan 2021 → present

Research outputs

Seasonal chemical variations of South Denmark's organic municipal waste and its estimated bioenergy potential
Rudnyckyj, S., Kucheryavskiy, S., Spedtsberg, E. M. L., Chaturvedi, T. & Thomsen, M. H., Mar 2025, In: Biomass & Bioenergy. 194, 107659.

Applicability of yeast extract in Postgate culture medium for microbiologically influenced corrosion (MIC) tests
Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 2025, In: Corrosion. 81, 1, p. 48-57

Microbial biomass production from enzymatically saccharified organic municipal waste and present microbial inhibitors
Rudnyckyj, S., Chaturvedi, T. & Thomsen, M. H., 2025, (E-pub ahead of print) In: Biomass Conversion and Biorefinery.

Optimized isolation of phenolic compounds from aqueous extract of the halophyte *Salicornia ramosissima*
Fredsgaard, M., Tchoumtchoua, J., Kohnen, S., Chaturvedi, T. & Thomsen, M. H., 2025, (Submitted).

Understanding and Modeling Corrosion in CO₂ Transportation Pipelines: Findings from the Carbon Adapt Project
Chaturvedi, T., Hansen, D. S., Ostadi, M. & Pedersen, S., 2025, (Accepted/In press) AIChE Annual Meeting. American Institute of Chemical Engineers (AIChE)

Organic waste and beechwood cellulose blend saccharification and validation of hydrolysates by fermentation
Rudnyckyj, S., Kucheryavskiy, S., Chaturvedi, T. & Thomsen, M. H., 14 Nov 2024, In: Applied Microbiology and Biotechnology. 108, 517.

Isolation of Polyphenols from Aqueous Extract of the Halophyte *Salicornia ramosissima*
Fredsgaard, M., Tchoumtchoua, J., Kohnen, S., Chaturvedi, T. & Thomsen, M. H., Jan 2024, In: Molecules. 29, 1, 220.

Protein production from halophyte juice via lactic acid bacteria acidification and subsequent yeast fermentation
Rudnyckyj, S., Hulkko, L. S. S., Chaturvedi, T. & Thomsen, M. H., 2024.

MIC mitigation comparison of Halophyte-extract against THPS and Glutaraldehyde: A benchmarking experiment
Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 14 Nov 2023. 1 p.

Low-dosage enzymatic hydrolysis of organic municipal waste for sugar and ethanol production
Rudnyckyj, S., Chaturvedi, T. & Thomsen, M. H., 12 Sept 2023, In: Biomass Conversion and Biorefinery.

Phenolic Compounds in *Salicornia* spp. and Their Potential Therapeutic Effects on H1N1, HBV, HCV, and HIV: A Review
Fredsgaard, M., Kaniki, S. E. K., Antonopoulou, I., Chaturvedi, T. & Thomsen, M. H., 10 Jul 2023, In: Molecules. 28, 14, 5312.

Harnessing the Value of *Tripolium pannonicum* and *Crithmum maritimum* Halophyte Biomass through Integrated Green Biorefinery

Hulkko, L. S. S., Chaturvedi, T., Custódio, L. & Thomsen, M. H., Jul 2023, In: *Marine Drugs.* 21, 7, 380.

Halophyte Extract-based Biocide vs. Conventional Biocides: A benchmarking experiment

Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 12 May 2023. 1 p.

Bioactive Extracts from *Salicornia ramosissima* J. Woods Biorefinery as a Source of Ingredients for High-Value Industries

Hulkko, L. S. S., Rocha, R. M., Trentin, R., Fredsgaard, M., Chaturvedi, T., Custódio, L. & Thomsen, M. H., 9 Mar 2023, In: *Plants.* 12, 6, 1251.

Low-Dosage Enzymatic Decomposition of OFMSW for Sugar Recovery and Ethanol Production

Rudnyckyj, S., Chaturvedi, T. & Thomsen, M. H., 2023. 1 p.

UPCYCLING OF MUNICIPAL SOLID WASTE WITH HERMETIA ILLUCENS (L.)

Chaturvedi, T., Schou, T. M., Nøhr, M., Rudnyckyj, S. & Thomsen, M. H., 2023, In: European Biomass Conference and Exhibition Proceedings. p. 186-189 4 p.

Cultivation and characterisation of *Salicornia europaea*, *Tripolium pannonicum* and *Crithmum maritimum* biomass for green biorefinery applications

Hulkko, L. S. S., Turcios, A. E., Kohnen, S., Chaturvedi, T., Papenbrock, J. & Thomsen, M. H., Dec 2022, In: *Scientific Reports.* 12, 1, 20507.

Importance of the Multiple Lines of Evidence (MLOE) approach in Diagnosing Microbiologically Influenced Corrosion (MIC)

Stein, J. L., Chaturvedi, T., Skovhus, T. & Thomsen, M. H., 29 Nov 2022.

Biohydrogen Production in Microbial Electrolysis Cells Utilizing Organic Residue Feedstock: A Review

Jensen, L. S., Kaul, C., Juncker, N. B., Thomsen, M. H. & Chaturvedi, T., Nov 2022, In: *Energies.* 15, 22, 8396.

Valorisation of *Salicornia* Waste Biomass Through Green Biorefinery

Hulkko, L. S. S., Chaturvedi, T. & Thomsen, M. H., Nov 2022.

Extraction, Isolation, and Purification of Value-Added Chemicals from Lignocellulosic Biomass

Chaturvedi, T., Hulkko, L. S. S., Fredsgaard, M. & Thomsen, M. H., Sept 2022, In: *Processes.* 10, 9, 1752.

Investigation and optimization of heat and enzymatic pretreatments of OFMSW and its combination with cellulose

Rudnyckyj, S., Chaturvedi, T. & Thomsen, M. H., Sept 2022.

Optimization of enzymatic hydrolysis for utilization of food waste

Krail, L., Chaturvedi, T., Spedtsberg, E. M. L., Stein, J. L. & Thomsen, M. H., 31 Aug 2022.

Optimization of Extraction Conditions for Production of Halophyte-based Biocides for Microbiologically Influenced Corrosion (MIC) Mitigation

Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 30 Aug 2022.

Clean Biocide Project: Halophyte Extracts as Natural Corrosion Inhibitors in Water Systems

Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 26 Aug 2022.

Bioactive extracts from *Salicornia ramosissima*, *Tripolium pannonicum* and *Crithmum maritimum* as value-added products in halophyte-based biorefinery

Hulkko, L. S. S., Chaturvedi, T., Custódio, L. & Thomsen, M. H., 1 Jun 2022.

Purification and Isolation of Phenolic Compounds from the Extract of *Salicornia Ramosissima*
Fredsgaard, M., Kohnen, S., Chaturvedi, T. & Thomsen, M. H., 12 May 2022.

Extraction of bioactive phenolic and antioxidant compounds from lignified *Salicornia ramosissima*
Fredsgaard, M., Chaturvedi, T. & Thomsen, M. H., 11 Apr 2022.

Effect of Antimicrobial Halophilic Plant Extracts on Microbiologically Influenced Corrosion (MIC)
Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., Mar 2022. 15 p.

Extraction and Quantification of Chlorophylls, Carotenoids, Phenolic Compounds, and Vitamins from Halophyte Biomasses

Hulkko, L. S. S., Chaturvedi, T. & Thomsen, M. H., 14 Jan 2022, In: Applied Sciences (Switzerland). 12, 2, 17 p., 840.

Clean Biocide Project: Natural Corrosion Inhibitors Halophilic Plant Extracts for Biofilm Mitigation
Stein, J. L., Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 2021.

Halophilic Plant Extracts for Prevention of Microbiologically Influenced Corrosion (MIC)
Chaturvedi, T., Stein, J. L., Skovhus, T. L. & Thomsen, M. H., 2021, p. 20.

Process simulation and techno-economic assessment of *Salicornia* sp. based jet fuel refinery through *Hermetia illucens* sugars-to-lipids conversion and HEFA route
Fredsgaard, M., Hulkko, L. S. S., Chaturvedi, T. & Thomsen, M. H., 2021, In: Biomass & Bioenergy. 150, 106142.

***Salicornia* Species: Current Status and Future Potential**

Chaturvedi, T., Christiansen, A. H. C., Gołębiewska, I. & Thomsen, M. H., 2021, *Future of Sustainable Agriculture in Saline Environments*. 22 p.

The Clean Biocide Project Halophilic plant extracts for prevention of microbiologically influenced corrosion (MIC)
Stein, J. L., Chaturvedi, T., Thomsen, M. H. & Skovhus, T. L., 2021.

Developing process designs for biorefineries-definitions, categories, and unit operations

Chaturvedi, T., Torres, A. I., Stephanopoulos, G., Thomsen, M. H. & Schmidt, J. E., Mar 2020, In: Energies. 13, 6, 1493.

Effect of Halophyte Extract on Sulphate reducing prokaryotes

Chaturvedi, T. (Inventor), Thomsen, M. H. (Inventor) & Skovhus, T. (Inventor), 2020, (In preparation)

Low-Temperature Pretreatment of Lignocellulosic Biomass for Enhanced Biogas Production

Casaretto, R., Agdal, E. B. L., Cayenne, A., Chaturvedi, T. & Holm-Nielsen, J. B., Nov 2019, In: Chemical Engineering and Technology. 42, 12, p. 2565-2573 9 p.

Bioethanol potential of raw and hydrothermally pretreated banana bulbs biomass in simultaneous saccharification and fermentation process with *Saccharomyces cerevisiae*

Awedem Wobiwo, F., Chaturvedi, T., Boda, M., Fokou, E., Emaga, T. H., Cybulska, I., Deleu, M., Gerin, P. A. & Thomsen, M. H., Sept 2019, In: Biomass Conversion and Biorefinery. 9, 3, p. 553-563 11 p.

Evaluation of marine *Synechococcus* for an algal biorefinery in arid regions

Bochenksi, T., Chaturvedi, T., Thomsen, M. H. & Schmidt, J. E., Jun 2019, In: Energies. 12, 12, 13 p., 2233.

Investigation of natural antimicrobial compounds for prevention of microbiologically influenced corrosion (MIC)

Chaturvedi, T., Skovhus, T. & Thomsen, M. H., Jun 2019.

Fermentation of Municipal Solid Waste to Lactic Acid using *Lactobacillus Salivarius*
Chaturvedi, T., Bassan, A. & Thomsen, M. H., May 2019.

Lignocellulosic Thermochemical Pretreatment Processes

Cybulska, I., Chaturvedi, T. & Thomsen, M. H., Apr 2019, *Biorefinery: Integrated Sustainable Processes for Biomass Conversion to Biomaterials, Biofuels, and Fertilizers*. Bastidas-Oyanedel, J.-R. & Schmidt, J. E. (eds.). Cham: Springer Publishing Company, p. 153-165 13 p.

Investigation of microbial souring mechanisms and test of natural antibiotics for MIC prevention
Chaturvedi, T., Skovhus, T. L. & Thomsen, M. H., 5 Nov 2018.

Hydrothermal pretreatment: Process modeling and economic assessment within the framework of biorefinery processes
Torres, A. I., Ashraf, M. T., Chaturvedi, T., Schmidt, J. E. & Stephanopoulos, G., 1 Jun 2017, *Hydrothermal Processing in Biorefineries: Production of Bioethanol and High Added-Value Compounds of Second and Third Generation Biomass*. Springer, p. 207-235 29 p.

Estimation of bioenergy potential for local biomass in the United Arab Emirates
Ashraf, M. T., Fang, C., Bochenski, T., Cybulska, I., Alassali, A., Sowunmi, A., Farzanah, R., Brudecki, G. P., Chaturvedi, T., Haris, S., Schmidt, J. E. & Thomsen, M. H., 17 Jan 2016, In: *Emirates Journal of Food and Agriculture*. 28, 2, p. 99-106 8 p.

Exploring Opportunities for the Production of Chemicals from Municipal Solid Wastes within the Framework of a Biorefinery
Bonk, F., Chaturvedi, T., Torres, A. I., Schmidt, J. E., Thomsen, M. H. & Stephanopoulos, G., 1 Jan 2015, In: *Computer Aided Chemical Engineering*. 37, p. 2123-2128 6 p.

Characterization of the chemical composition of the halophyte *salicornia bigelovii* under cultivation
Cybulska, I., Chaturvedi, T., Alassali, A., Brudecki, G. P., Brown, J. J., Sgouridis, S. & Thomsen, M. H., 19 Jun 2014, In: *Energy and Fuels*. 28, 6, p. 3873-3883 11 p.

Chemical characterization and hydrothermal pretreatment of *Salicornia bigelovii* straw for enhanced enzymatic hydrolysis and bioethanol potential
Cybulska, I., Chaturvedi, T., Brudecki, G. P., Kádár, Z., Meyer, A. S., Baldwin, R. M. & Thomsen, M. H., 2014, In: *Bioresource Technology*. 153, p. 165-172 8 p.

Halophytes for the production of liquid biofuels

Brown, J. J., Cybulska, I., Chaturvedi, T. & Thomsen, M. H., 2014, *Sabkha Ecosystems: Volume IV: Cash Crop Halophyte and Biodiversity Conservation*. Dordrecht: Springer, p. 67-72 6 p. (*Tasks for Vegetation Science*, Vol. 47).

Activities

Halophyte-Based Green Biorefinery: Potential Biomass Feedstocks And Processing Routes

Hulkko, L. S. S. (Speaker), Turcios, A. (Other), Chaturvedi, T. (Other), Papenbrock, J. (Other) & Thomsen, M. H. (Other)
10 May 2022

Climathon - Climate Hackathon
Chaturvedi, T. (Organizer)
25 Oct 2019

Halophytes based aquaponic system for a biorefinery
Chaturvedi, T. (Lecturer)
23 Sept 2019 → 25 Sept 2019

Saline plant molecular factory for production of pharmaceuticals, functional feed, and biofuels using biorefinery technologies

Chaturvedi, T. (Lecturer)
10 Sept 2019 → 13 Sept 2019

Investigation of microbial souring mechanisms and testing natural antibiotics for prevention of microbiologically influenced corrosion (MIC)
Chaturvedi, T. (Lecturer), Skovhus, T. L. (Lecturer) & Thomsen, M. H. (Lecturer)
10 Jan 2019

Projects

Algae derived biomass for anti-fouling coatings
Chaturvedi, T. (PI), Skovhus, T. (CoPI) & Thomsen, M. H. (PI)
01/11/2018 → 31/01/2019

EXTRACTION OF VALUE-ADDED COMPOUNDS FROM GREEN FRACTIONATED HALOPHYTE BIOMASS
Hulkko, L. S. S. (PI), Thomsen, M. H. (Supervisor) & Chaturvedi, T. (Supervisor)
15/07/2020 → 07/02/2024

FLEXI-GREEN FUELS: Flexible and resilient integrated biofuel processes for competitive production of green renewable jet and shipping fuels
Thomsen, M. H. (CoPI), Chaturvedi, T. (Project Participant), Rudnyckyj, S. (Project Participant), Kaniki, S. E. K. (Project Participant), Spedtsberg, E. M. L. (Project Participant), Nielsen, L. (Project Participant), Alonso, D. L. (Project Participant), Sørensen, J. L. (Project Participant) & Christensen, M. D. (Project Coordinator)
European Commission
01/01/2021 → 31/12/2023

Halophilic Plant Extracts as Natural Corrosion Inhibitors and Biocides for Oil Field Application
Thomsen, M. H. (PI), Chaturvedi, T. (Col), Skovhus, T. L. (Col), Stein, J. L. (Project Participant), Fredsgaard, M. (Project Participant) & Christensen, M. D. (Project Coordinator)
The Danish Hydrocarbon Research and Technology Centre
01/09/2020 → 31/08/2021

Improving GreeN Innovation for the blue revolutiON: new tools and opportunities for a more sustainable animal farming
Thomsen, M. H. (PI), Chaturvedi, T. (Project Participant), Rudnyckyj, S. (Project Participant) & Christensen, M. D. (Project Coordinator)
European Commission
01/11/2022 → 31/10/2026

INBIOM – The Innovation Network for Bio Resources
Holm-Nielsen, J. B. (PI), Chaturvedi, T. (Project Participant), Agdal, E. B. L. (Project Participant), Thomsen, M. H. (Project Participant) & Miltersen, A. H. (Project Coordinator)
Uddannelses- og forskningsministeriet
01/12/2018 → 31/12/2020

AQUACOMBINE: Integrated on-farm Aquaponics systems for co-production of fish, halophyte vegetables, bioactive compounds, and bioenergy
Thomsen, M. H. (PI), Holmene, C. F. (Project Manager), Chaturvedi, T. (Col), Steensballe, A. (Project Participant), Fredsgaard, M. (Project Participant) & Hulkko, L. S. S. (Project Participant)
01/10/2019 → 31/12/2023

AQUACOMBINE: Integrated on-farm Aquaponics systems for co-production of fish, halophyte vegetables, bioactive compounds, and bioenergy
Thomsen, M. H. (PI), Chaturvedi, T. (Project Participant), Hulkko, L. S. S. (Project Participant), Fredsgaard, M. (Project Participant), Kaniki, S. E. K. (Project Participant), Christensen, M. D. (Project Coordinator), Holmene, C. F. (Project Manager) & Stensballe, A. (Project Participant)
European Commission
01/10/2019 → 31/12/2023

Investigation of microbial souring mechanisms and testing natural antibiotics for prevention of microbiologically influenced corrosion (MIC)

Chaturvedi, T. (PI), Skovhus, T. (CoPI) & Thomsen, M. H. (PI)
01/10/2018 → 31/12/2018

Metabolic engineering of lipid pathways in an oleaginous yeast and optimization of fermentation parameters for enhanced lipid production from the organic fraction of municipal solid waste

Nielsen, L. (PI), Thomsen, M. H. (Supervisor), Sørensen, J. L. (Supervisor) & Chaturvedi, T. (Supervisor)
01/08/2022 → 30/07/2027

Sugar to Lipid Conversion and Bio-hydrogen Production from Hydrolyzed Lignocellulosic Residues and Organic Fraction of Municipal Solid Waste

Spedtsberg, E. M. L. (PI), Thomsen, M. H. (Supervisor), Sørensen, J. L. (Supervisor) & Chaturvedi, T. (Supervisor)
01/10/2021 → 30/09/2024