

Other Projects, Publications and Conference Presentations

Industry Projects

1. Resource recovery from hazardous waste streams (Manufacturing sector – local subsidiary).
2. Evaluation of proprietary products for specific applications such as disinfection, desalination, air pollution control, enhancement of fuel quality, water/process water/wastewater treatment, urban farming, IAQ etc. (Singapore Conglomerate, SMEs, Philanthropic Organization).
3. Assessment and management of park ponds, ABC Design Features and standalone treatment systems (Park/ Estate Managements – local, overseas).
4. Product Formulation for Health, Safety & Environment e.g., solvent substitution (Print & Publishing Industry), attractants for insect vectors (Pest Management Industry).
5. Assessment and management of impact of industrial activities/ small businesses/ tourism facilities/ landscaping materials on water/ soil quality (Offshore Marine sector, Park/ Estate Managements).

Research Projects

1. Development of a bioremediation strategy for petroleum contaminated mainland soil.
2. Process development and optimization for remediation of heavy-metal contaminated clay-rich soils.
3. Marine spill-related properties and dispersant effectiveness of biodiesels and their precursors.

Publications:

1. K. A. Anu Appaiah, A. Parvathy, **M. Mathew**, N. G. K. Karanth. Replacement of hexachlorocyclohexane to environmentally friendly biosurfactant as precursor for the production of biosurfactant from *Pseudomonas*. *Journal of Microbiology and Biotechnology*. 08/**2011**; 21(8):858-60.
2. **Mathew, M.** ‘Learning Ecology using Problem-based learning’. **Learners Together**. <http://www.learnerstogether.net/learning-ecology-using-problem-based-learning/185>, **2007**.
3. **Mathew, M.**, L.R. Tan, Q. Su, X. Yang, M. Baxter, and E. Senior. “Bioremediation of 6% (w/w) Diesel-Contaminated Mainland Soil in Singapore: Comparison of Different Biostimulation and Bioaugmentation Treatments”. *Engineering in Life Sciences: 6(1): 63-67. February 2006*. ISBN 1618-0240.
4. **Mathew, M.**, L.R. Tan, Q. Su, X. Yang, M. Baxter, and E. Senior. “Bioremediation of Diesel-Contaminated Mainland Soil in Singapore”. W. G. Lyon, J.J. Hong, R.K. Reddy, Eds. *Proceedings of First International Conference on Environmental Science and Technology*, vol.(II), American Science Press, New Orleans, **2005**. ISBN: 0-9768853-5-2.

5. Mathew, M. and Obbard, J.P. **“Optimization of the Dehydrogenase assay for Measurement of Indigenous Microbial Activity in petroleum contaminated beach sediments”**. *Biotechnology Letters*: 23(3):227-230, February 2001.
6. **Mathew, M.**, Gin, Y.H., Obbard, J.P., Tan, H.M. and Ting, Y.P. ‘Bioremediation of petroleum contaminated beach sediments in Singapore’ **Acta Biotechnologica: 19(3): 225-233. 1999.**
7. Tan, K.S., B. Johnson, B.P.L. Goh, K.P.P. Tan, J.K.Y. Low, K.Y.H. Gin, Y.P. Ting, J. Obbard, H.M. Tan, **M. Mathew** & L.M. Chou. ‘An assessment of the impact of the Evoikos oil spill on the marine environment in Singapore’ **Singapore Maritime and Port Journal**, pp. 69-81. 1999.

Conference presentations:

1. **M. Mathew**, E. Tee, Y.K. Tan. **Preparation for an environmental learning trail for community audience: Does 3D virtual site visit replace or complement on-site visit at rehearsal stage. International Conference on Open & Innovative Education (ICOIE) 2024.** Hong Kong. July 2024.
2. **M. Mathew**. Applied Chemistry in Final Year Projects. **Chemistry National Meeting Singapore (ChnmSG4) 2021.** Singapore. September 2021.
3. **M. Mathew**, S.H. Tan, X.M. Goh, H.T. Teh, K.Y. Lim & H.C. Hia. Floating Wetlands for Improvement of Wastewater Treatment in Oxidation Ponds. **WEF-EESS Asia-Pacific Wastewater Treatment and Reuse Conference 2015.** Singapore. June 2015.
4. **Mariam Mathew**, Goh Xue Min Jamie & Tan Sok Hian. Phosphate Removal and Recovery using Hydrated Ferric Oxide Adsorbent. **World Engineer’s Summit 2015.** Singapore. July 2015.
5. Bryan Quek Wei Hong & **Mariam Mathew**. Development and Evaluation of a Simple, Portable and Low-cost Adsorbent for Removal of Arsenic from Drinking Water. **2nd Water Research Conference** organised by the **International Water Association (IWA)** and Elsevier Publishers. Singapore. January 2013.
6. Tio Wee, Chua Wang An, Bryan Quek Wei Hong and **Mariam Mathew**. Development and Validation of a Starch-based Analyser for Iodine in Drinking Water. International Congress on Chemical, Biological and Environmental Sciences in **Taipei, Taiwan, January 2013.**
7. Tio Wee, Nicholas Ko Ming Jie, Tan Wei Hao, Ong Lin Jie, Mervyn Chiang WenQiang, Aaron Li Chengle, William Ho, **Prity S. Mukherjee** & **Mariam Mathew**. Water quality characterisation, Pollutant removal processes in a turtle pond and impact on receiving waterbody. Young Water Talent (YWT) Symposium, Singapore International Water Week (SIWW), **Singapore, July 2011.**
8. **P. Mukherjee**, **M. Mathew**, P. Koh, P. Goh, J. Chang, J. Weng, Q. Fang & A. Galistan. Photocatalytic application in wastewater treatment. Poster Presentation at the Singapore International Water Week (SIWW), July 2011 **Singapore.**
9. **M. Mathew**, Y.Yao, Y.L.Tan, H.S.Ong, Y.H.Phua, A.T.Nguyen, W.N.Tho, S.C.Lim, J.Wu, W.M.Wu, B.H.Chua, J.L.Ng, Y.Q.Yeo, H.C.Teo and C.T. Ong. Industrial Ecology - Towards Zero-Waste and Sustainability: a Case-Study of Two Hazardous Industrial Waste Streams. Presented at the ISWA/WMRAS Conference ‘East meets Waste’. **2008, Singapore.**

10. **M. Mathew**, Y.Yao, Y.L.Tan, H.S.Ong, Y.H.Phua, A.T.Nguyen, W.N.Tho, S.C.Lim, J.Wu, W.M.Wu and C.T.Ong. Management of Zinc-rich Electrostatic Precipitator (ESP) Dust from CRT Manufacture. Presented at the ISWA/WMRAS Conference 'East meets Waste'. **2008, Singapore.**
11. **M. Mathew**, S.C.Lim, B.H.Chua, J.L.Ng, Y.Q.Yeo, W.M. Wu, H.C.Teo and C.T. Ong. Use of Sludge Produced from Industrial Wastewater Treatment as Sand Replacement in Concrete. Presented at the ISWA/WMRAS Conference 'East meets Waste'. **2008, Singapore.**
12. **M. Mathew**, Z.A.May, A.A.T.Nang, M.H.Tay, Y.Yao, Y.L.Tan, H.S.Ong, Y.H.Phua, A.T.Nguyen, W.N.Tho, M.Ragan, B.J. Oko and A. Byron. Effect of Variation in Clay Content on Removal of Heavy Metals from Contaminated Soils by EDTA Chelation. Presented at the ISWA/WMRAS Conference 'East meets Waste'. **2008, Singapore.**
13. **M. Mathew**, A. A. Vasu, W.Q. Ng, Q. Zhang, F. Luo, S.Y. Goh, Q. Su, L.R. Tan, X. Yang, J. Mo, J. Ridehalgh and E. Senior. Sustainable Bioremediation Strategies for Petroleum-contaminated Soils. Presented at the ISWA/WMRAS Conference 'East meets Waste'. **2008, Singapore.**
14. **Mathew M.**, J. Mo, J. Ridehalgh & E. Senior. Assisted Weathering of Motor-oil Contaminated Clay-rich Soils using Indigenous Microorganisms. Presented at the Eighth International Symposium: In-Situ and On-site Bioremediation. **Maryland, USA. June 6-9, 2005.**
15. **Mathew M.**, L.R. Tan, Q. Su, X. Yang, M. Baxter & E. Senior. Bioremediation of Diesel-contaminated Mainland Soil in Singapore. Presented at the First International Conference on Environmental Science & Technology. **New Orleans, USA. January 23-26, 2005.**
16. **Mathew M.**, W.Q. Ng & E. Senior. Bioremediation of Petroleum-contaminated Singapore Mainland Soil using Indigenous Microorganisms. Poster presentation at the 7th International Symposium: In-Situ and On-site Bioremediation. Orlando, **Florida, USA. June 2-5, 2003.**
17. Ng W.Q., **M. Mathew** & E. Senior. Bioremediation of diesel-contaminated mainland soil using indigenous microorganisms. Poster presentation at the Fourth Combined Scientific Meeting, organized by Biomedical Research & Experimental Therapeutics Society of Singapore, Singapore Society for Biochemistry and Molecular Biology, Singapore Society for Microbiology and Biotechnology. Clinical Research Centre, NUS, **Singapore. January 15-18, 2003.**
18. **Mathew M.**, W.Q. Ng and E. Senior. Bioremediation of motor oil-contaminated mainland soil using indigenous microorganisms. Presented as **invited speaker** at the Advanced Environmental Biotechnology Symposium, organized by the Institute of Environmental Science & Engineering and Nanyang Technological University. IESE, **Singapore. July 24-26, 2002.**
19. **Mathew, M.** and J.P. Obbard. Effect of readily available carbon sources on biodegradation of hydrocarbon contaminated beach sediments. Presented at the 3rd SEA Regional Conference on Higher Engineering Education Network "South East Asia Region Scientific and Technical Researches

on Environmental Engineering". **Manila**. October **1999**.

20. **Mathew, M.**, Chia Y.L and Obbard J.P. Enhancement of Hydrocarbon Biodegradation using Crude Palm Oil. Presented at the Australasian Conference on Environmental Engineering; "Engineers must deliver sustainability". **Auckland**, New Zealand. July, **1999**.

21. J.P.Obbard, M.J.Barr, H. D. Robinson, M.S.Carville and **M. Mathew**. The characteristics and treatment of landfill leachates. Presented at the Asia Pacific conference "Environmental strategies for the 21st century". **Singapore**. April **1998**.

22. Parvathi, A., **Mathew M.**, Anu Appaiah K.A. and Karanth, N.G.K. Resting Cell system of Pseudomonas Ptm+ strain for enhanced production of biosurfactant specific to hexachlorocyclohexane. Presented at the poster session of the national symposium on "Relevance of Biotechnology in Industry", at Cochin University of Science and Technology. **India**. March **1995**.

23. **Mariam Varkey**, Anant Achary and Kunthala Jayaraman, Whole Cell Immobilization of Agrobacterium radiobacter for the production of semi-synthetic penicillin intermediates. Presented at the poster session of the international symposium on "Microbes for better living" at the Defence Food Research Laboratory. Mysore, **India**. November **1994**.