TAMER MAHMOUD TAMER ABDELRAZIK

ONISILOS MSCA COFUND FELLOW

Πανεπιστήμιο Κύπρου
University of Cyprus

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The ONISILOS Research Project, titled "Construction of Unique Polymeric Nanoparticles for Selective Removal of Various Pollutants," focuses on the development of advanced nanostructured polymeric adsorbents for wastewater and seawater remediation. The project aims to fabricate surfactant-free polymeric nanoparticles via precipitation polymerization, incorporating tailored functional groups (epoxy, phosphonic, sulfonic, cationic, and hydrophobic moieties) to achieve high selectivity toward ammonia, heavy metals, radionuclides, dyes, and organic contaminants.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie Grant Agreement No 101034403

Dr. Tamer Mahmoud Tamer is an ONISILOS MSCA COFUND Research Fellow at the Department of Mechanical and Manufacturing Engineering, University of Cyprus. He holds a Ph.D. in Organic Chemistry (minor: Polymer Chemistry) from Ain Shams University, Egypt. Before joining the University of Cyprus, he served as a full researcher at the City of Scientific Research and Technological Applications (SRTA-City), Egypt, and completed several international postdoctoral fellowships in Slovakia, Australia, China, and Russia. Dr. Tamer's research expertise lies in polymer chemistry, nanostructured functional materials, and advanced adsorbent systems for environmental, biomedical, and energy applications. He has authored over 120 SCI-indexed publications and 15 book chapters, with an h-index of 37 (Scopus), reflecting sustained contributions to polymeric materials for water treatment, drug delivery, wound healing, and fuel cell technologies. His ONISILOS Research Project, titled "Construction of Unique Polymeric Nanoparticles for Selective Removal of Various Pollutants," focuses on the development of advanced nanostructured polymeric adsorbents for wastewater and seawater remediation. The project aims to fabricate surfactant-free polymeric nanoparticles via precipitation polymerization, incorporating tailored functional groups (epoxy, phosphonic, sulfonic, cationic, and hydrophobic moieties) to achieve high selectivity toward ammonia, heavy metals, radionuclides, dyes, and organic contaminants. The research integrates polymer synthesis, nanostructure engineering, physicochemical characterization (FTIR, TGA, SEM, TEM, BET, zeta potential, ion-exchange capacity), and adsorption performance modeling (kinetic, thermodynamic, and simulation studies). Emphasis is placed on structure-property-function relationships and regeneration capability to ensure practical and scalable water remediation solutions.

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The project is conducted within the Polymers and Polymer Processing Laboratories at the University of Cyprus under the supervision of Prof. Theodora Krasia-Christoforou. It combines interdisciplinary expertise in polymer chemistry, materials science, environmental engineering, and industrial process evaluation. Through this fellowship, Dr. Tamer is establishing a specialized research group on functional polymeric nanoparticles at the University of Cyprus, contributing to sustainable water remediation technologies and advancing the European research agenda in advanced materials and environmental nanotechnology.

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