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Authors: Buthayna Al-Ghafri, Tanujjal Bora, Priyanka Sathe, Sergey Dobrestov, Mohammed Al-Abri



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## Photocatalytic microbial removal and degradation of organic contaminants of water using PES fibers

Buthayna Al-Ghafri<sup>1</sup>, Tanujjal Bora<sup>1,2\*</sup>, Priyanka Sathe<sup>1,3</sup>, Sergey Dobrestov<sup>3,4</sup> & Mohammed Al-Abri<sup>1,5\*</sup>

<sup>1</sup>Nanotechnology Research Center, Sultan Qaboos University, PO Box 33, PC 123, Al-Khouth, Oman

<sup>2</sup>Center of Excellence in Nanotechnology, Asian Institute of Technology, PO Box 4, Klong Luang, Pathumthani – 12120, Thailand

<sup>3</sup>Department of Marine Science & Fisheries, College of Agricultural & Marine Sciences, Sultan Qaboos University, PO Box 34, Al-Khouth, Muscat 123, Oman.

<sup>4</sup>Center of Excellence in Marine Biotechnology, Sultan Qaboos University, PO Box 50, Al-Khouth, Muscat 123, Oman

<sup>5</sup>Department of Chemical and Petroleum Engineering, College of Engineering, Sultan Qaboos University, PO Box 33, PC 123, Al-Khouth, Oman

Corresponding authors: alabri@squ.edu.om, tanujjal.bora@gmail.com

### Highlights

- Electro-spun Polyethersulfone fibers possesses high surface area
- Addition of DMF improved flux, mechanical strength and hydrophobicity
- Photocatalytic OH<sup>•</sup> radical from PES fibers gave efficient MB degradation
- PES fibers also exhibited antibacterial activity

### Abstract

Photocatalytic bacterial removal and dye degradation by polyethersulfone (PES) fibers under visible light is reported here. PES fibers were arranged in a random mesh structure using electro-spinning technique that allows utilization of maximum surface area of the fibers. The influence of concentration of PES polymer, type of solvent and surface chemistry of the fibers on their mechanical properties and photocatalytic activities was investigated. Ratio of solvent (DMF (Dimethylformamide) to NMP (N-Methyl-2-pyrrolidone)) while preparing the PES fibers was found to be crucial in terms of the PES fiber thickness, fluid flux, mechanical strength and hydrophobicity

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