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## **Hybrid nanofibers of TiO<sub>2</sub>-silicone and TiO<sub>2</sub>-Ag-silicone for high water flux photocatalytic degradation of dairy effluent**

Muzafar A. Kanjwal<sup>a,\*</sup>, Martin Almb, Peter Thomsen<sup>b</sup>, Nasser A.M. Barakat<sup>c</sup>, Ioannis S. Chronakis<sup>a, \*\*</sup>

<sup>a</sup>Nano-BioScience Research Group, DTU-Food Technical University of Denmark, , Soltofts plads, B 227, 2800 Kgs. Lyngby, Denmark

<sup>b</sup>BioModics ApS, Gregersensvej 7, DK-2630 Taastrup, Denmark

<sup>c</sup>Department of Textile Engineering, Chonbuk National University, Jeonju 561-756, Republic of Korea

\* Corresponding author. Tel.: (+45 45254941) E-mail addresses: muka@food.dtu.dk (M.A. Kanjwal),

\*\* Corresponding author. Tel.: (+45 40206413) E-mail addresses: ioach@food.dtu.dk (I.S. Chronakis),

### **Abstract**

TiO<sub>2</sub> and TiO<sub>2</sub>-Ag nanofibers were produced by electrospinning technique and surface coated on silicone elastomer discs (diameter: 10.0 mm; thickness: 2.0 mm) by dipcoating method. The coated discs were characterized by various morphological and physicochemical techniques (like SEM, TEM, XRD, FTIR, EDS and UV). These characterizations reveal that the surface morphology of electrospun nanofibers remain intact by the dipcoating technique. The produced TiO<sub>2</sub>- and TiO<sub>2</sub>-Ag silicone discs were utilized as photocatalysts to degrade dairy waste water with an efficient water flux and water photosplitting properties.

**Key Words:** Silicone Elastomer; Electrospinning; Silver titanium nanomaterials; Dairy effluent; Water Flux; Photodegradation; Water Photosplitting