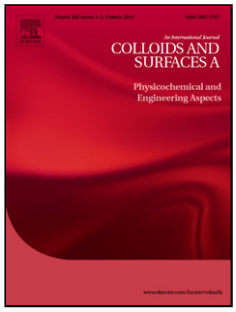

Title: Enhanced Marine Antifouling Performance of Silver-Titania Nanotube Composites from Hydrothermal Processing

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PII: S0927-7757(17)30168-1
DOI: http://dx.doi.org/doi:10.1016/j.colsurfa.2017.02.034
Reference: COLSUA 21389

To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 10-1-2017
Revised date: 14-2-2017
Accepted date: 15-2-2017

Please cite this article as: Maxine Swee-Li Yee, Poi Sim Khiew, Siew Shee Lim, Wee Siong Chiu, Yuen Fen Tan, Yih-Yih Kok, Chee-Onn Leong, Enhanced Marine Antifouling Performance of Silver-Titania Nanotube Composites from Hydrothermal Processing, Colloids and Surfaces A: Physicochemical and Engineering Aspects http://dx.doi.org/10.1016/j.colsurfa.2017.02.034

<AT>Enhanced Marine Antifouling Performance of Silver-Titania Nanotube Composites from Hydrothermal Processing

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<ABS-Head><ABS-HEAD>Graphical abstract
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<ABS-HEAD>Highlights► Novel hydrothermal synthesis of Ag-titanium dioxide nanotube composite material ► Ag nanoparticle clusters supported on scrolled titanium dioxide nanotube structure ► Potent antimicrofouling effect, up to 98% decrease of biofilm attachment ► Low Ag loading with significant biofilm inhibition of marine bacteria *H. pacifica* ► Antiproliferative effect on marine microalgae *D. tertiolecta*, *Isochrysis* sp.

<ABS-HEAD>Abstract
<ABS-P>Marine fouling is an age-old problem which continues to plague the maritime industry. The fouling process progresses from an initial formation of bacterial biofilm on unprotected surfaces. Silver is a well-known antimicrobial agent which is well-tolerated by mammals, while titania nanotubes have enhanced properties due to a greater specific surface area on the inner and outer surfaces of the tubular structure. A novel 2-step hydrothermal synthesis of a silver-titania nanotube (Ag/TNT) composite material is presented. The morphology, particle size, chemical content, crystal structure, optical properties and surface area were systematically characterized. Determination of biofilm inhibitory properties revealed that Ag/TNT with the lowest silver content (0.95 wt% Ag) decorated with Ag nanoparticles of ca. 3 nm reduced biofilm formation of marine bacterium *Halomonas pacifica* by 98% compared to pure titania nanotubes and