

Author's Accepted Manuscript

Static adsorption of protein-polysaccharide hybrids on hydrophilic modified membranes based on atomic layer deposition: anti-fouling performance and mechanism insight

Ning Li, Yu Tian, Jianhui Zhao, Jian Zhang, Lingchao Kong, Jun Zhang, Wei Zuo



PII: S0376-7388(17)32649-2
DOI: <https://doi.org/10.1016/j.memsci.2017.11.063>
Reference: MEMSCI15759

To appear in: *Journal of Membrane Science*

Received date: 15 September 2017
Revised date: 23 November 2017
Accepted date: 25 November 2017

Cite this article as: Ning Li, Yu Tian, Jianhui Zhao, Jian Zhang, Lingchao Kong, Jun Zhang and Wei Zuo, Static adsorption of protein-polysaccharide hybrids on hydrophilic modified membranes based on atomic layer deposition: anti-fouling performance and mechanism insight, *Journal of Membrane Science*, <https://doi.org/10.1016/j.memsci.2017.11.063>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Static adsorption of protein-polysaccharide hybrids on hydrophilic modified membranes based on atomic layer deposition: anti-fouling performance and mechanism insight

Ning Li, Yu Tian^{*1}, Jianhui Zhao, Jian Zhang, Lingchao Kong, Jun Zhang, Wei Zuo

State Key Laboratory of Urban Water Resource and Environment (SKLUWRE),

School of Environment, Harbin Institute of Technology, Harbin, 150090, China

***Corresponding Author.** Tel.: + 8613804589869, e-mail: hit_tianyu@163.com

(Yu Tian).

Abstract

Initial membrane fouling affects fouling behavior and characteristic significantly. Static adsorption investigation contributes to intensively understand the initial fouling process. In order to determine the superior anti-fouling material prepared by atomic layer deposition, the TiO₂, Al₂O₃ and ZnO modified membranes were successfully fabricated, characterized by XPS, XRD and SEM and then employed for static adsorption of BSA and SA foulants. More importantly, the anti-fouling mechanism was interpreted by adsorption isotherms and thermodynamics. Results showed that the adsorption amount of BSA and SA on PVDF membrane decreased by 43.2% and 73.0%

¹ No.73, Huanghe Road, Nangang District, Harbin City, Heilongjiang Province, P.R. China.

Download English Version:

<https://daneshyari.com/en/article/7020305>

Download Persian Version:

<https://daneshyari.com/article/7020305>

[Daneshyari.com](https://daneshyari.com)