

## Accepted Manuscript

A mussel-induced method to fabricate reduced graphene oxide/ halloysite nanotubes membranes for multifunctional applications in water purification and oil/water separation

Yucheng Liu, Wenwen Tu, Mingyan Chen, Lili Ma, Bing Yang, Qingling Liang, Yuanyuan Chen

PII: S1385-8947(17)32151-4  
DOI: <https://doi.org/10.1016/j.cej.2017.12.043>  
Reference: CEJ 18204

To appear in: *Chemical Engineering Journal*

Received Date: 9 October 2017  
Revised Date: 6 December 2017  
Accepted Date: 9 December 2017

Please cite this article as: Y. Liu, W. Tu, M. Chen, L. Ma, B. Yang, Q. Liang, Y. Chen, A mussel-induced method to fabricate reduced graphene oxide/ halloysite nanotubes membranes for multifunctional applications in water purification and oil/water separation, *Chemical Engineering Journal* (2017), doi: <https://doi.org/10.1016/j.cej.2017.12.043>

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 proof before it is published in its final 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.



1 **A mussel-induced method to fabricate reduced graphene oxide/  
2 halloysite nanotubes membranes for multifunctional  
3 applications in water purification and oil/water separation**

4 **Yucheng Liu<sup>1\*</sup>, Wenwen Tu<sup>1</sup>, Mingyan Chen<sup>1</sup>, Lili Ma<sup>1</sup>, Bing  
5 Yang<sup>1</sup>, Qingling Liang<sup>1</sup>, Yuanyuan Chen<sup>1</sup>**

6 *1 College of Chemistry and Chemical Engineering, Southwest Petroleum University,  
7 Chengdu, Sichuan 610500, P R of China*

8 **Abstract**

9 In this work, a reduced graphene oxide/halloysite nanotubes (RGO/HNTs)  
10 membrane was synthesized via polydopamine (PDA) modification and  
11 assembly on the surface of commercial cellulose acetate (CA) membrane  
12 constituting a PDA/RGO/HNT-CA membrane. The PDA/RGO/HNTs was  
13 characterized by X-ray diffraction (XRD), X-ray photoelectron  
14 spectroscopy (XPS), Fourier transform infrared (FT-IR) spectroscopy, and  
15 transmission electron microscopy (TEM). In addition, scanning electron  
16 microscopy (SEM) and atomic force microscopy (AFM) were used to  
17 detect the surface morphology structure and roughness of composite  
18 membranes, respectively. A hydrophilicity experiment demonstrated that  
19 the flux of PDA/RGO/HNT membrane was dramatically improved with  
20 an increasing HNT ratio and the retention rates of Methylene Blue (MB),  
21 Congo Red (CR), Cu<sup>2+</sup>, and Cr<sup>3+</sup> were 99.72%, 99.09%, 99.74% and

---

1\* Corresponding author: Yucheng Liu.

School of Chemistry and Chemical engineering, Southwest Petroleum University, Chengdu  
610500, China

E-mail addresses: rehuo2013@sina.cn

Download English Version:

<https://daneshyari.com/en/article/6580605>

Download Persian Version:

<https://daneshyari.com/article/6580605>

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