

## Accepted Manuscript

In-situ generation of iron-dopamine nanoparticles with hybridization and cross-linking dual-functions in poly (vinyl alcohol) membranes for ethanol dehydration via pervaporation

Qiang Liu, Heyun Wang, Chunlin Wu, Zhong Wei, Hao Wang

PII: S1383-5866(17)31421-1

DOI: <http://dx.doi.org/10.1016/j.seppur.2017.06.038>

Reference: SEPPUR 13816

To appear in: *Separation and Purification Technology*

Received Date: 5 May 2017

Revised Date: 13 June 2017

Accepted Date: 15 June 2017

Please cite this article as: Q. Liu, H. Wang, C. Wu, Z. Wei, H. Wang, In-situ generation of iron-dopamine nanoparticles with hybridization and cross-linking dual-functions in poly (vinyl alcohol) membranes for ethanol dehydration via pervaporation, *Separation and Purification Technology* (2017), doi: <http://dx.doi.org/10.1016/j.seppur.2017.06.038>

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.



In-situ generation of iron-dopamine nanoparticles with hybridization and cross-linking dual-functions in poly (vinyl alcohol) membranes for ethanol dehydration via pervaporation

Qiang Liu <sup>a</sup>, Heyun Wang <sup>a,c,d</sup>, Chunlin Wu <sup>a</sup>, Zhong Wei<sup>a,b,c,d\*</sup>, Hao Wang<sup>a</sup>

<sup>a</sup>*School of Chemistry and Chemical Engineering, Shihezi University, Shihezi 832003, China*

<sup>b</sup>*Key Laboratory for Green Processing of Chemical Engineering of Xinjiang bingtuan, Shihezi University, Shihezi 832003, China*

<sup>c</sup>*Key Laboratory of Materials-Oriented Chemical Engineering of Xinjiang Uygur Autonomous Region*

<sup>d</sup>*Engineering Research Center of Materials-Oriented Chemical Engineering of Xinjiang Uygur Autonomous Region*

\*Corresponding author.

Tel.: +86 17799434147,

Fax: +86-0993-2057272,

E-mail address: steven\_weiz@sina.com

**ABSTRACT**

In this study, we fabricated poly (vinyl alcohol) (PVA) hybrid membranes with iron-dopamine (Fe-DA) nanoparticles by using the in-situ complex cross-linking method between Fe-DA nanoparticles and the PVA matrix. Based on the molecular structure feature of DA and the chelation interaction between Fe<sup>3+</sup> and PVA chains, the Fe-DA/PVA hybrid membranes demonstrated superior hydrophilicity, higher mechanical strength, swelling resistance, and high separation performance for ethanol

Download English Version:

<https://daneshyari.com/en/article/4989806>

Download Persian Version:

<https://daneshyari.com/article/4989806>

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