

# Supporting Information

## Improved performance of Cr(VI)-reducing microbial fuel cells by nano-FeS hybridized biocathodes

Xinglei Zhuang<sup>1</sup>, Shien Tang<sup>1</sup>, Weiliang Dong, Fengxue Xin, Honghua Jia, Xiayuan

Wu\*

College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University,  
Nanjing 211816, China

**\*Corresponding author:**

Xiayuan Wu

Nanjing Tech University, No.30 Puzhu Road(S), Nanjing, 211816, Jiangsu, P.R. China

**Tel./Fax:** +86 25 58139929

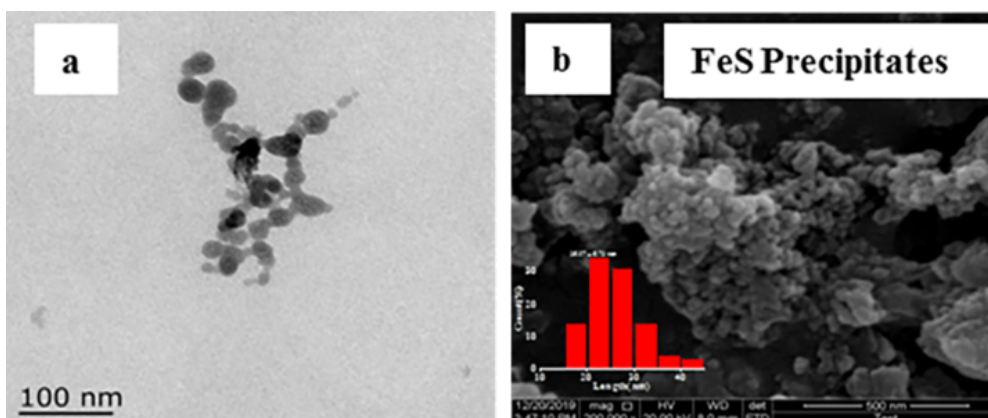
**E-mail:** wuxiayuan@njtech.edu.cn

<sup>1</sup>These authors contributed equally to the article.

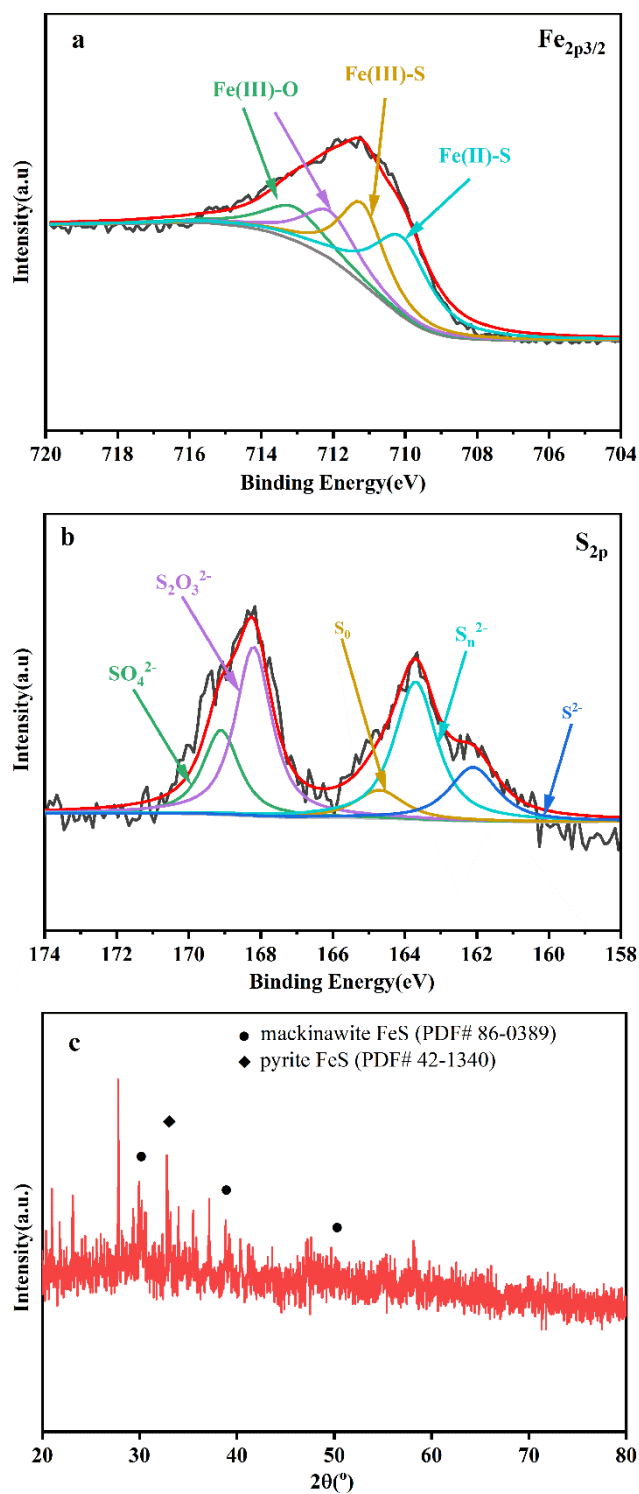
FIGURES (3)

TABLES (4)

PAGES (8)



**Fig. S1** The TEM (a) and SEM (b) images of produced precipitates in the Fe+S MFC for electrode biofilm fabrication.



**Fig. S2** The XPS spectra (a:  $\text{Fe}_{2p_{3/2}}$ ; b:  $\text{S}_{2p}$ ) and XRD pattern (c) of produced precipitates in the Fe+S MFC for electrode biofilm fabrication.

**Table S1** The distribution (Wt%) of different valence Fe compounds.

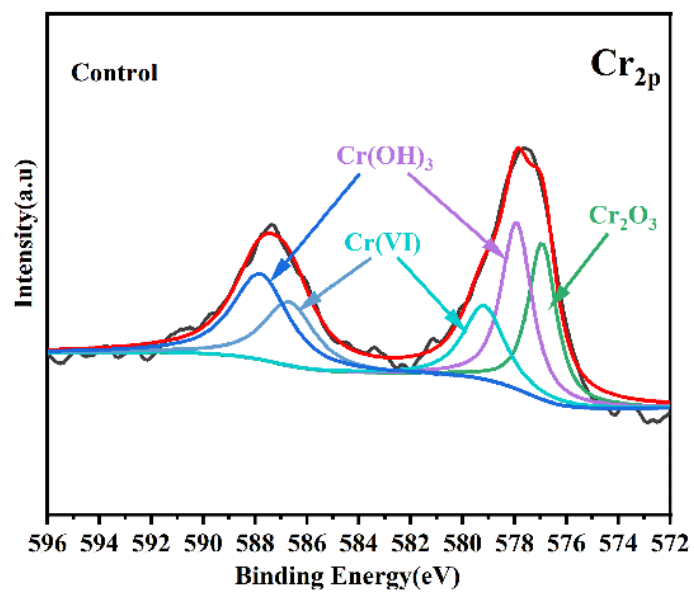
Group	FeS	Fe <sub>2</sub> O <sub>3</sub>	FeS <sub>2</sub>	Fe <sub>3</sub> O <sub>4</sub>
Before Cr(VI) removal	32.53%	21.69%	42.91%	2.87%
After Cr(VI) removal	27.36%	35.07%	23.78%	13.79%

**Table S2** Valence distribution (Wt%) of S element.

Group	S(IV)	S(0)	S(-I)	S(-II)
Before Cr(VI) removal	24.15%	32.15%	31.33%	12.37%
After Cr(VI) removal	63.16%	26.11%	8.12%	2.61%

**Table S3** Valence distribution (Wt%) of Cr element.

Valence state of element	Wt(%)
Cr(VI)	23.03%
Cr(III)	69.68%
Cr(0)	7.29%



**Fig. S3** The XPS spectra of the Control electrode biofilm after Cr(VI) removal.

**Table S4** The  $\alpha$ -diversity indices of microbial community in different electrode biofilms after Cr(VI) removal.

<b>Group</b>	<b>OTU</b>	<b>ACE</b>	<b>Chao1</b>	<b>Shannon</b>	<b>Simpson</b>
<b>Control</b>	254	404.1156	342.0286	3.0915	0.0802
<b>Fe</b>	212	256.1966	255.3846	3.2939	0.0625
<b>S</b>	171	225.6967	213.0000	1.7742	0.3478
<b>Fe+S</b>	275	288.3727	288.5938	2.9606	0.1015