## **Supporting information**

## Food spice-derived gel polymer electrolyte and pulse-plasma exfoliated graphene nanosheets electrodes for symmetrical solid-state supercapacitors

Phuoc Anh Le<sup>1\*</sup>, Van Qui Le<sup>2</sup>, Nghia Trong Nguyen<sup>3</sup>, Thi Viet Bac Phung<sup>1\*</sup>

<sup>1</sup> Institute of Sustainability Science, VNU Vietnam Japan University, Vietnam National

University, Hanoi 100000, Vietnam

<sup>2</sup> Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu 300093, Taiwan

<sup>3</sup> School of Chemical Engineering, Hanoi University of Science and Technology, Hanoi 100000, Vietnam.

## \*Corresponding author:

Phuoc Anh Le; E-mail: <a href="https://www.edu.vn">https://www.edu.vn</a> Phuoc Anh Le; Phuoc Phuoc

Thi Viet Bac Phung; E-mail: ptv.bac@vju.ac.vn

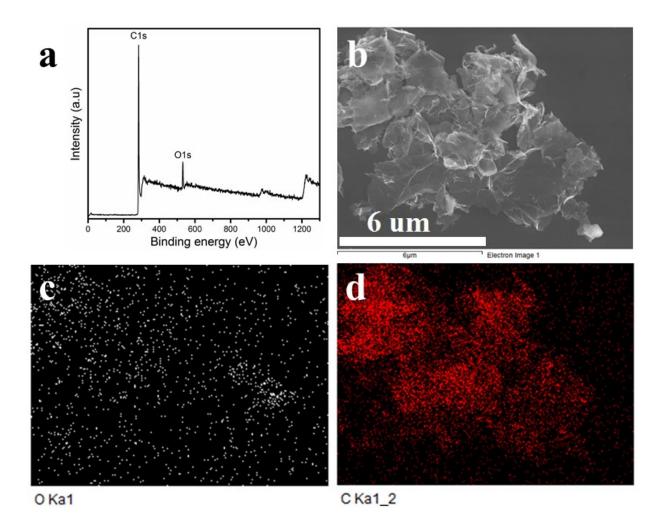


Figure S1 (a) XPS survey spectra and (b, c, d) SEM mapping of pulse control exfoliated graphene sheets.

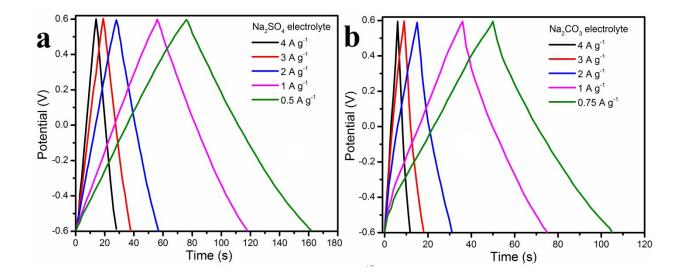


Figure S2 GCD curves of graphene sheets electrode in (a)  $Na_2SO_4 \ 1M$  and (b)  $Na_2CO_3 \ 1M$  electrolyte.

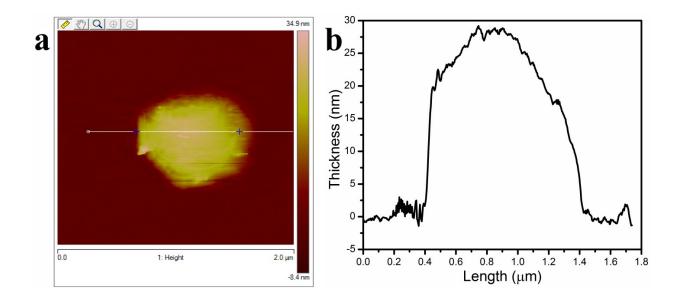


Figure S3 AFM profile of graphene nanosheets by surface-plasma method.

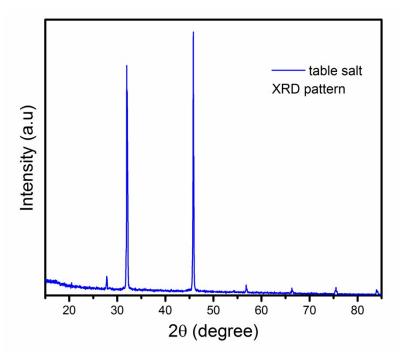


Figure S4 XRD pattern of table salt.