Supporting information for

Unveiling the effect of crystallinity and particle size of biogenic Ag/ZnO nanocomposites on the electrochemical sensing performance of carbaryl detection in agricultural products

Nguyen Le Nhat Trang^a, Dao Thi Nguyet Nga^a, Lemma Teshome Tufa^e, Van Tan Tran^e,

Thuan-Tran Hung^d, Vu Ngoc Phan^{a,c}, Tuyet Nhung Pham^a, Van-Tuan Hoang^{a*},

Anh-Tuan Le^{a,b**}

^a Phenikaa University Nano Institute (PHENA), PHENIKAA University, Hanoi 12116,

Vietnam

^b Faculty of Materials Science and Engineering (MSE), PHENIKAA University, Hanoi

12116, Vietnam

^c Faculty of Biotechnology, Chemical and Environmental Engineering (BCEE), PHENIKAA University, Hanoi 12116, Viet Nam

^d Center for Advanced Materials and Environmental Technology, National Center for Technological Progress, Hanoi 12116, Viet Nam

^e Department of Chemical Engineering and Applied Chemistry, Chungnam National University, Daejeon, 34134, Republic of Korea

Corresponding authors:

*<u>tuan.hoangvan@phenikaa-uni.edu.vn</u> (V.T. Hoang)

**<u>tuan.leanh@phenikaa-uni.edu.vn</u> (A.T. Le)



Fig. S1 DLS spectrum of Z₇₀; Z₈₀; Z₉₀.



Fig. S2 CV response recorded of 100 μM CBR in 0.1 M PBS (pH 3) on Z₉₀ modified electrodes (a) with various scan rates from 10 to 60 mV s⁻¹. Insert shows the corresponding calibration plots of peak current response vs. scan rate (b) with error bars.



Fig. S3 (a) DPV curves of the Z_{90} sample in 100 μ M CBR at various pH values, corresponding to the plots of peak current vs. pH with error bars (b), respectively. Scan rate of 50 mV s⁻¹.



Fig. S4 DPV recorded on Z_{90} -modified electrodes with various reaction time using in 0.1M PBS (pH 3) containing 100 μ M CBR and the plots of peak current vs. reaction time with error bars. Scan rate of 60 mV s⁻¹.



Fig. S5 Effect of the modifier amount on the CBR oxidation response at Z_{90} /SPE.



Fig. S6 Repeatability of (a) Z_{70} ; (b) Z_{80} ; (c) Z_{90} -modified electrodes in 100 μ M CBR.



Fig. S7 Interference investigation of the Z_{90} modified electrodes in 0.1 M PBS (pH 3) containing 100 μ M CBR with 4-fold concentration of interference substances.