Electronic Supplementary Material (ESI) for RSC Advances.

Vanillin-crosslinked chitosan/ZnO nanocomposites as drug delivery system for 5-Fluorouracil: study the release behavior via mesoporous ZrO_2-Co_3O_4 nano-oxides modified sensor and antitumor activity

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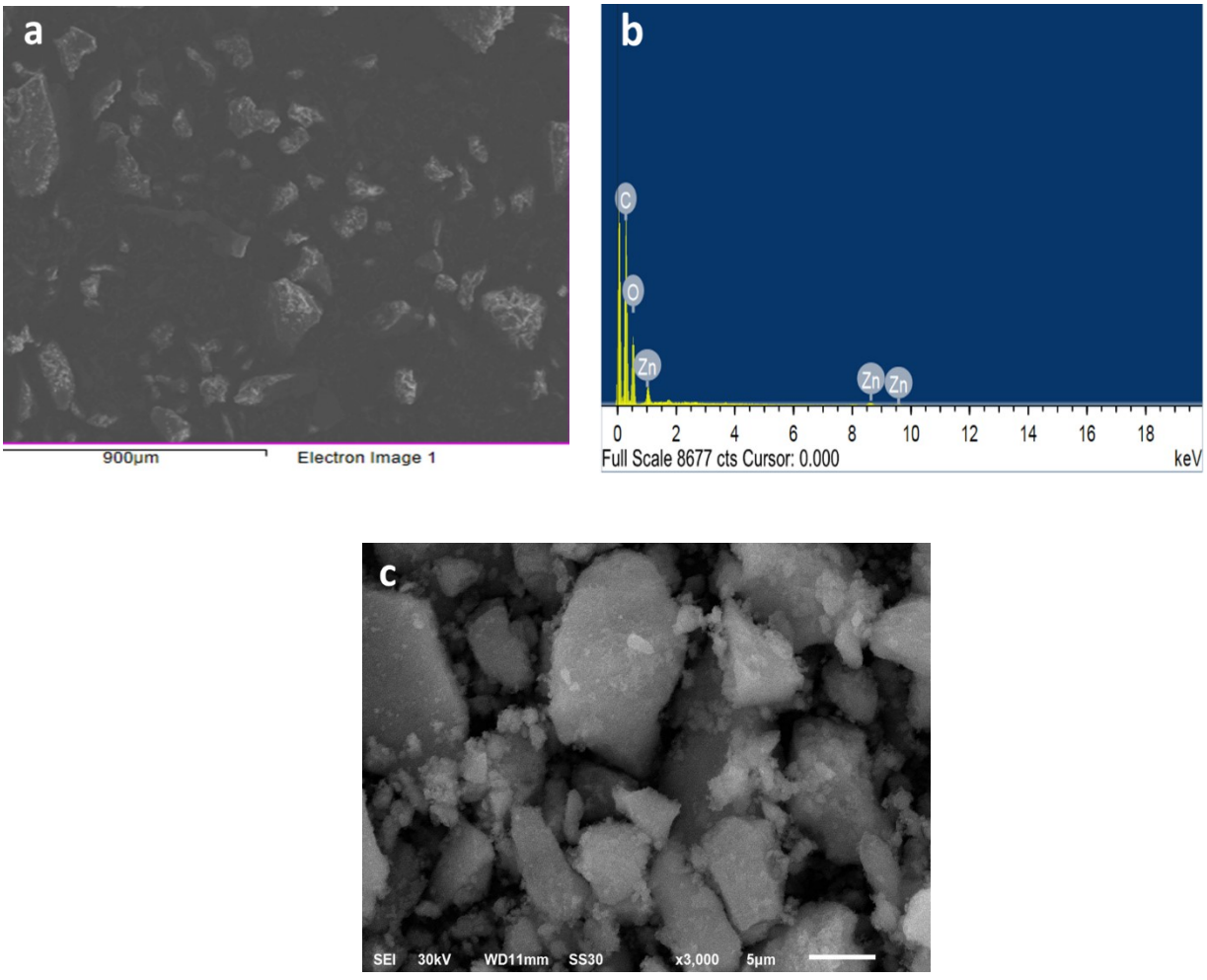

Fig. S_1. EDX analysis of CV_5 (a&b), SEM of mesoporous ZrO_2-Co_3O_4 NPs (c)

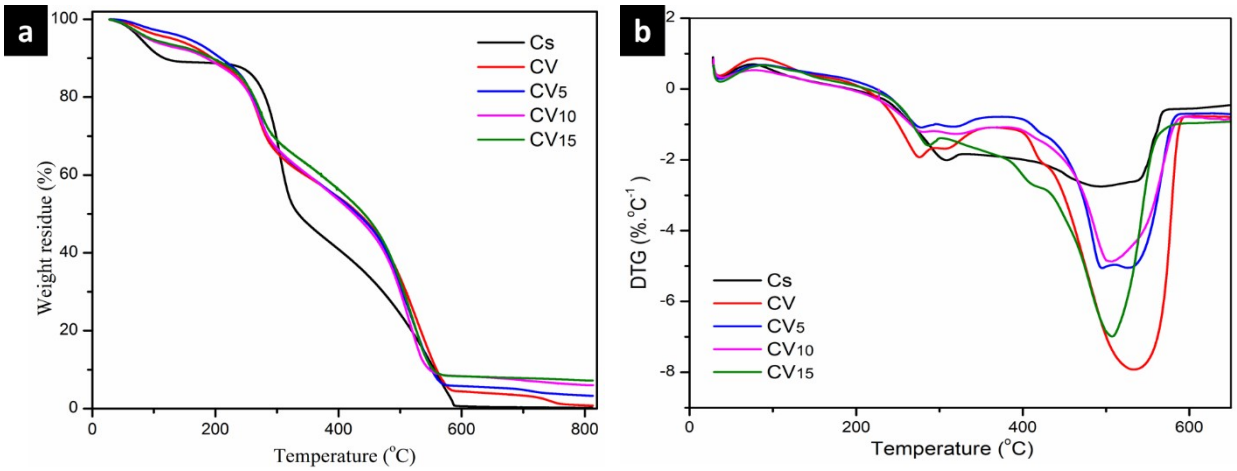

Fig. S_2. (a) TGA and (b) DTG of CS, CV, CV_5, CV_{10} and CV_{15}.

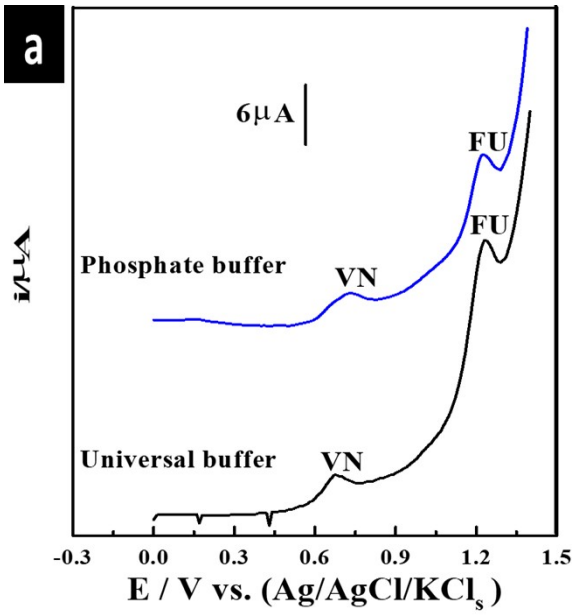

Fig. S_3. Effect of different types of buffer solutions at the 1.0% [ZrO_2-Co_3O_4 NPs] MCPS (***a*** = 25 mV, f = 60 Hz, and ΔE_s = 10 mV).

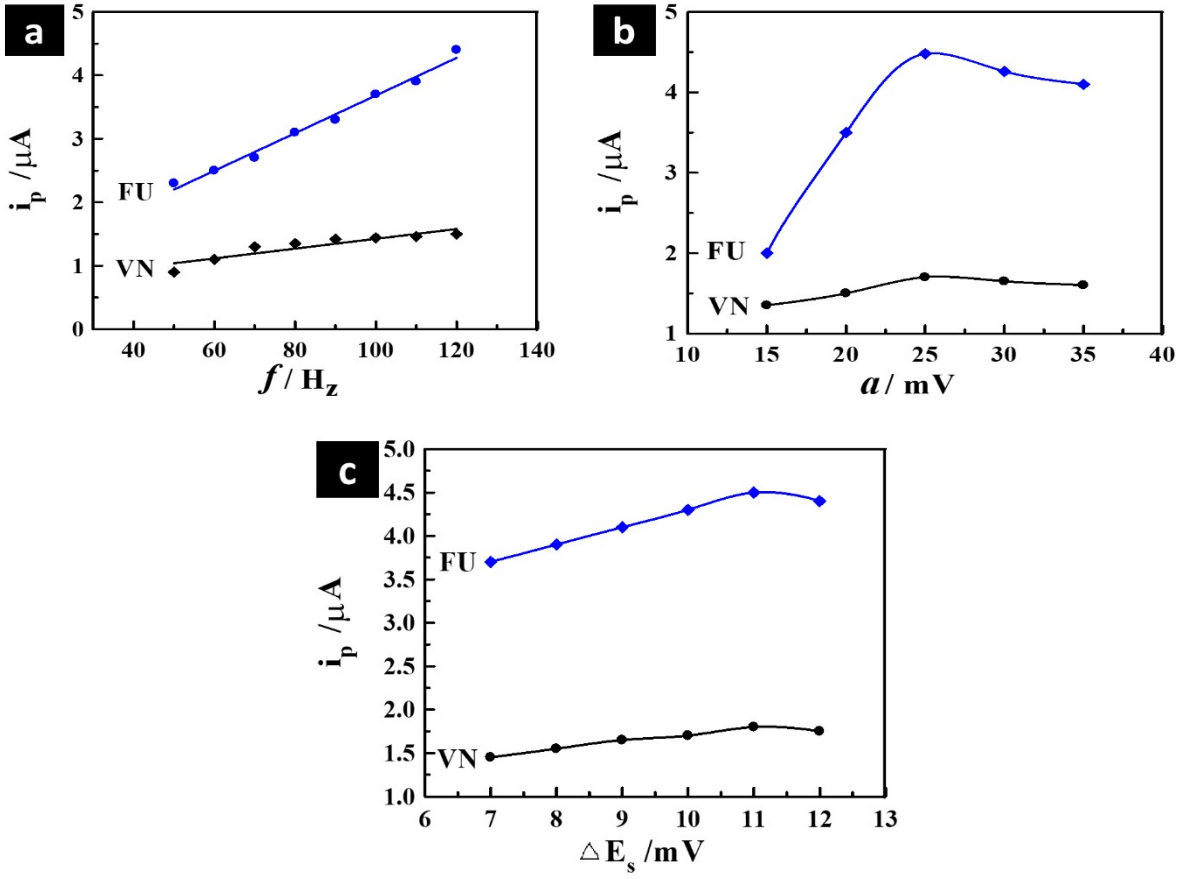

Fig. S4. Influence of changing of **(A)** frequency (*f*), **(B)** pulse amplitude (*a*), and **(C)** scan increment (E_s) using co-mixed liquor of 4.5 µM 5-FU and 0.65 µM Vn upon 1.0 % [ZrO_2-Co_3O_4 NPs] MCPS at E_{acc}= 0V and t_{acc} = 12s.

Fig.S5. *In-vitro* release of 5-FU from 5-FU/CV, 5-FU/CV_5, 5-FU/CV_{10} and 5-FU/CV_{15} new and 6 months stores samples at pH 5.4 and pH 7.4.