Silver Nanoparticles Incorporated Ultralong Hydroxyapatite Nanowires with Internal Reference as SERS Substrate for trace Environmental Pollutants Detection

Lei zhang, Yongquan Luo, Ya meng Zhao, BoXin Guan, Lingyi Zhang, Bohao Yu, * and Weibing Zhang *

a Shanghai Key Laboratory of Functional Materials Chemistry, School of Chemistry & Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China.

Contents

Figure S 1. SEM of HAPNWs@AgNPs after storage ten months
Figure S 2. Energy Dispersive Spectrometer (EDS) of HAPNWs and HAPNWs@AgNPs
Figure S 3. XPS of HAPNWs@AgNPs after storage ten months
Figure S 4. XRD of HAPNWs@AgNPs after storage ten months
Figure S 5. The reproducibility of the HAPNWs@AgNPs paper
Figure S 6. The stability of the HAPNWs@AgNPs paper
Figure S 7. The LOD of SERS about benzidine
Figure S 1. SEM of HAPNWs@AgNPs after storage ten months. (Scale bar: 200 nm; 2 μm; 2 μm; 10 μm)
**Figure S 2.** Energy Dispersive Spectrometer (EDS) of HAPNWs (a) and HAPNWs@AgNPs (b)
Figure S 3. XPS of HAPNWs@AgNPs after storage ten months (a), Ag element (b), Ca element (c) and P element (d)
Figure S 4. XRD of HAPNWs@AgNPs after storage ten months
Figure S 5. The reproducibility of the HAPNWs@AgNPs paper; SERS of 1.0 μM 4-ATP ethanol solution with different batches (1; 2; 3; 4)
Figure S 6. The stability of the HAPNWs@AgNPs paper, SERS of 1.0 μM 4-ATP ethanol solution (a); SERS of detection after one hundred days (b)
Figure S7. The LOD of SERS about benzidine, SERS of blank water (a); SERS of 0.2 μM benzidine solution (1-1; 1-2; 1-3)