

Electronic supplementary information

**Functional Hybrid Nickel Nanostructures as Recyclable  
SERS Substrates: Detection of Explosives and Biowarfare  
Agents**

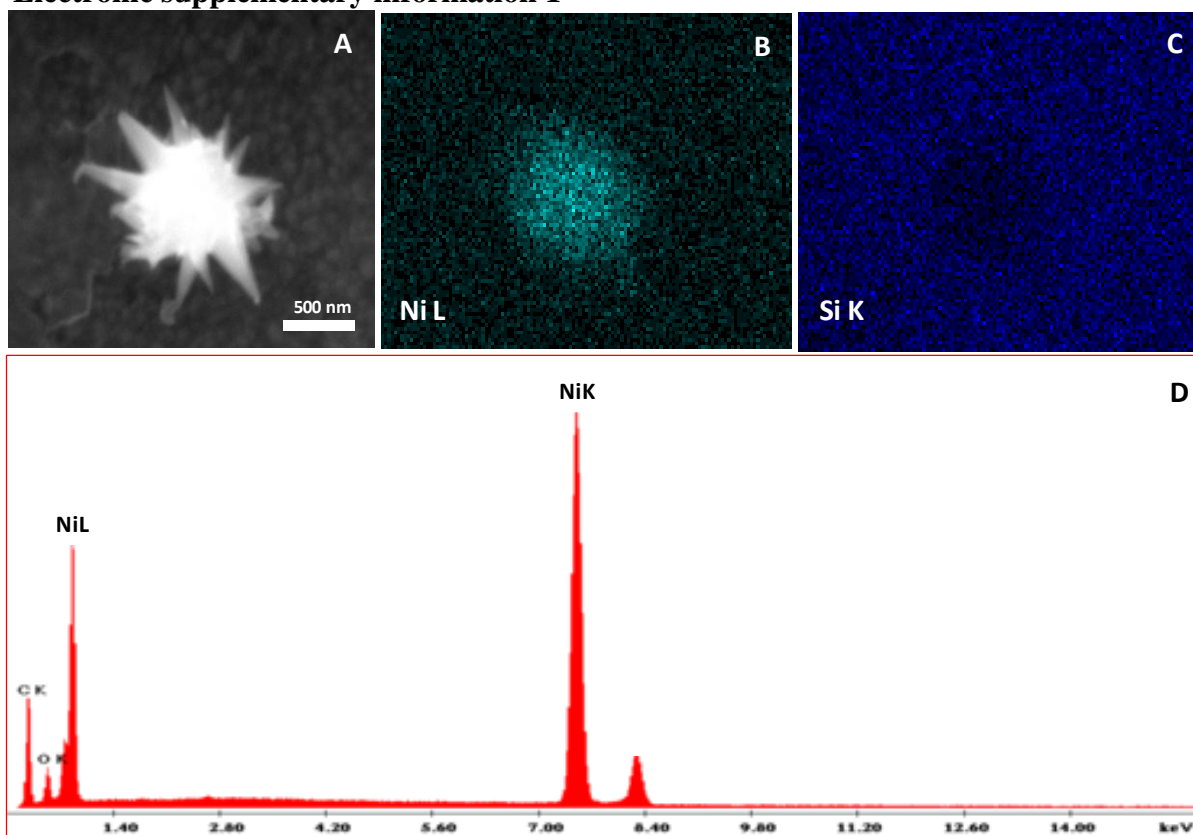
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Technology Madras, Chennai 600 036, India*

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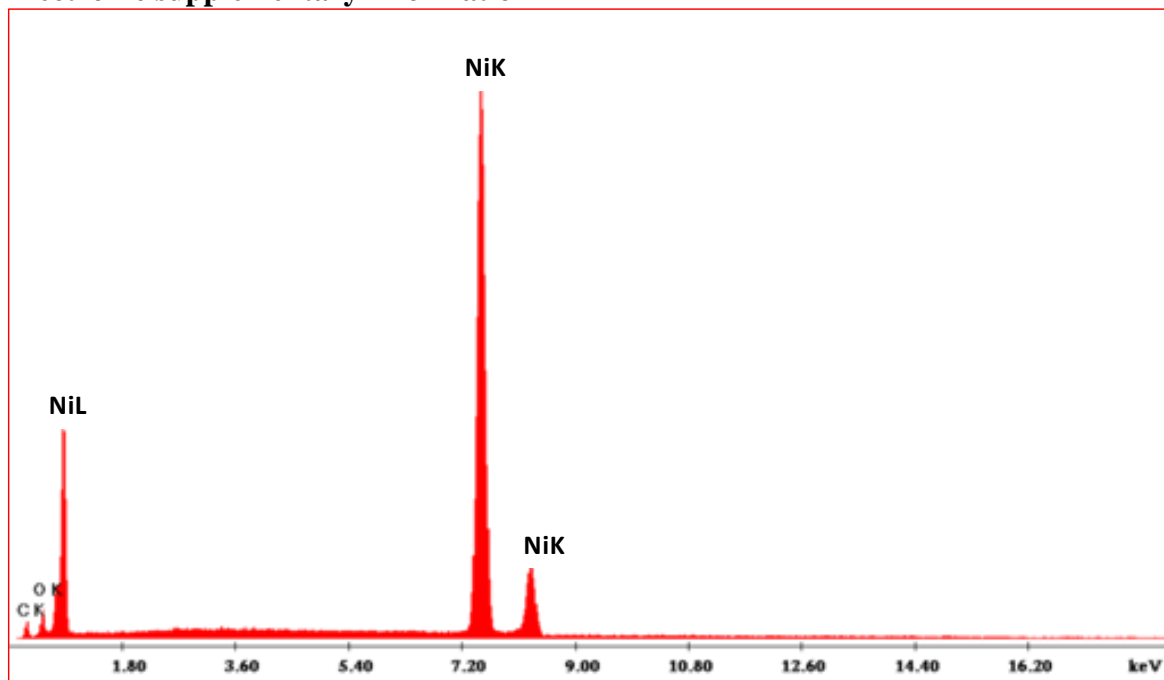
Fax: + 91-44 2257-0545

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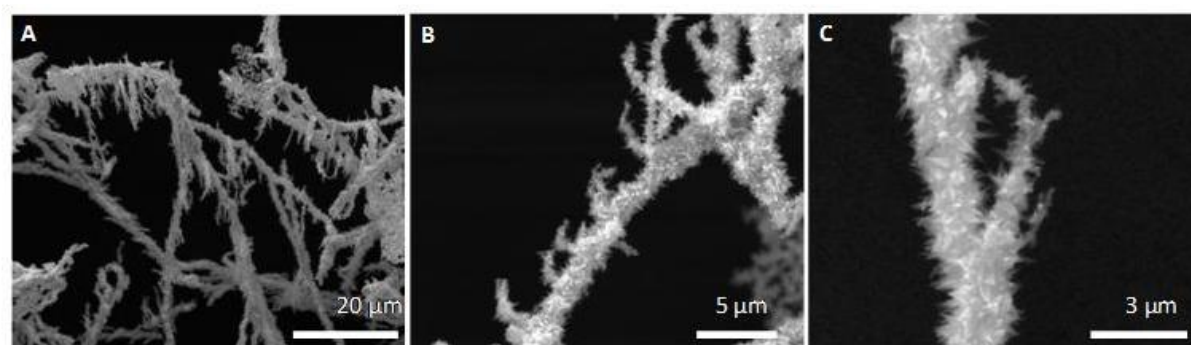
**Figure S1.** SEM images and corresponding EDAX data of a single Ni nanoflower.

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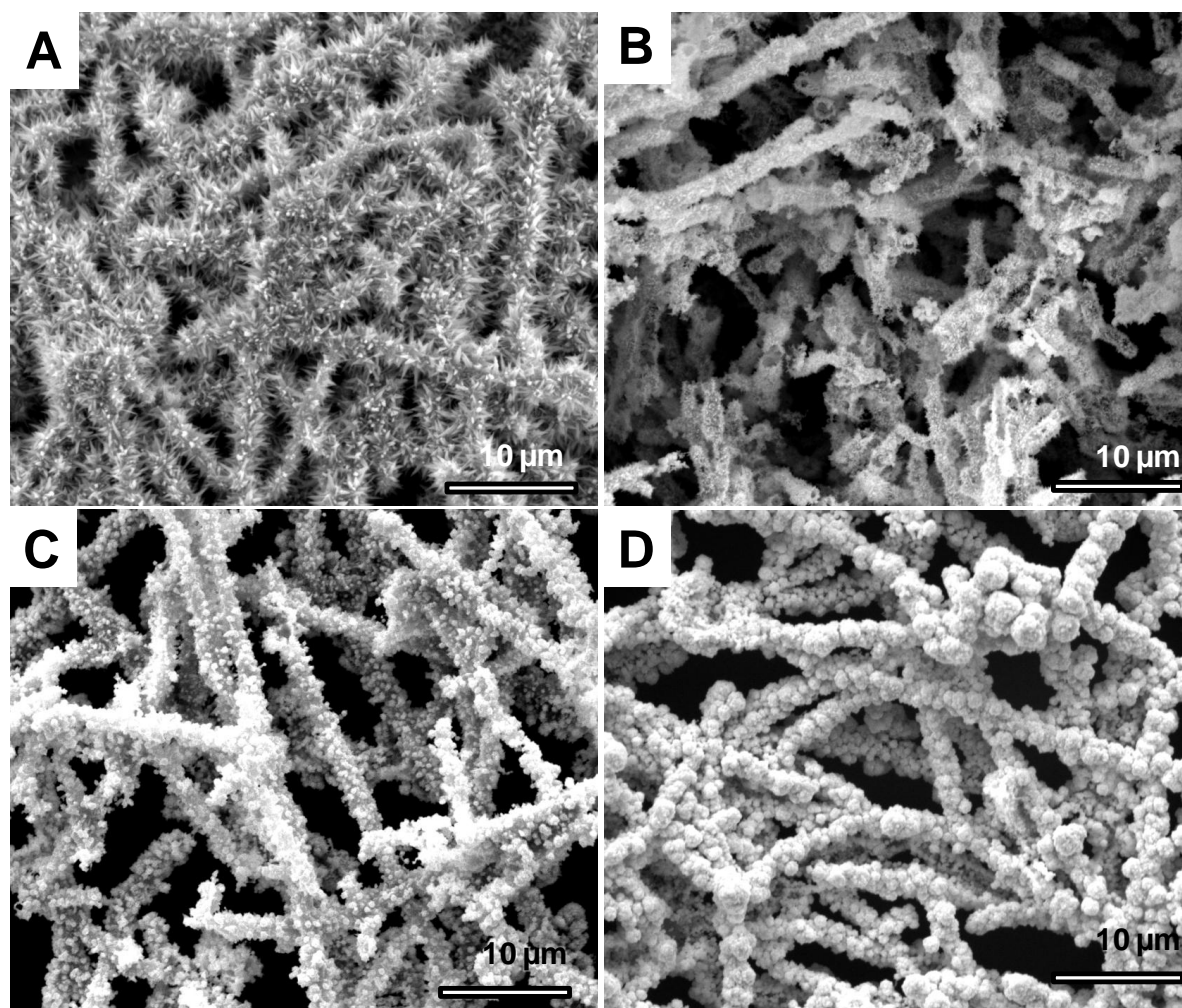
**Figure S2.** EDAX spectrum of a single Ni NW.

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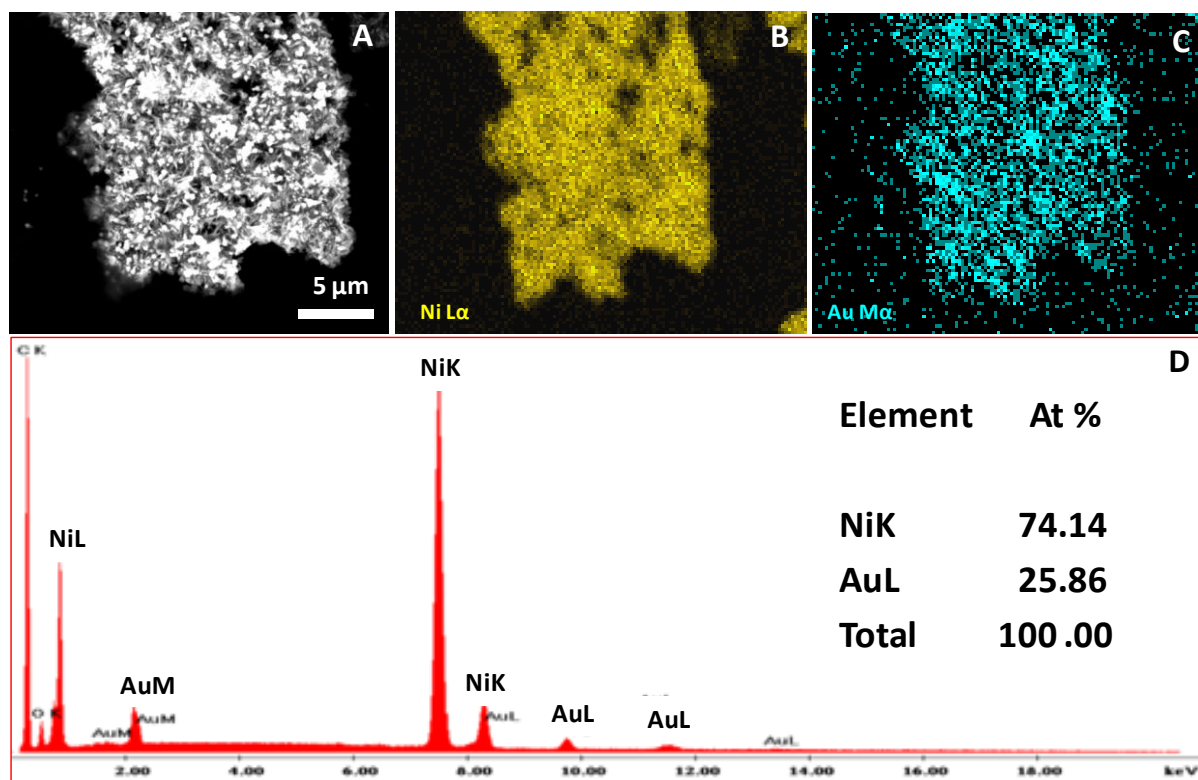
**Figure S3.** SEM images of branched Ni NWs formed after 30 min of reaction.

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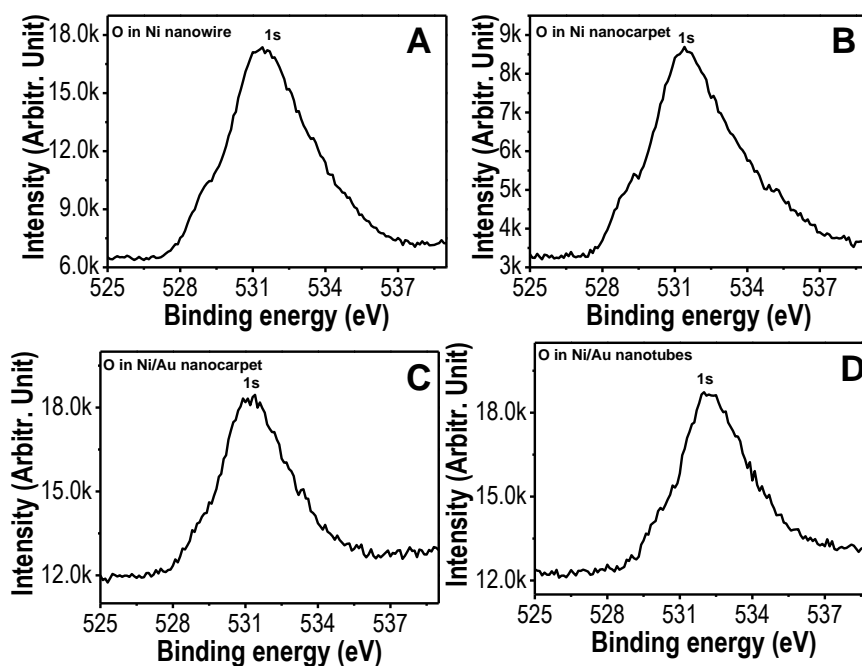
**Figure S4.** (A) Large area SEM image of Ni NWs. B-D are the large area SEM images of Ni/Au nanotubes prepared by adding 500 μL of 10, 15 and 25 mM of Au<sup>3+</sup> into 4 mg of Ni NWs, respectively.

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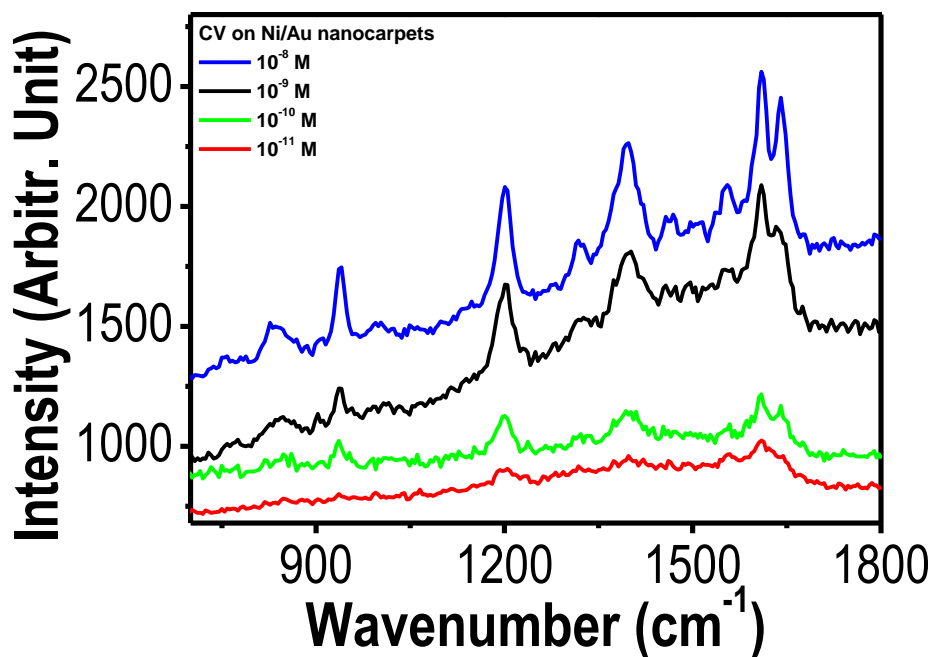
**Figure S5.** SEM (A) and corresponding Ni L $\alpha$  (B) and Au M $\alpha$  (C) based EDAX images of B<sub>1</sub>. (D) EDAX spectrum of the B<sub>1</sub>. Inset of D shows the quantification data.

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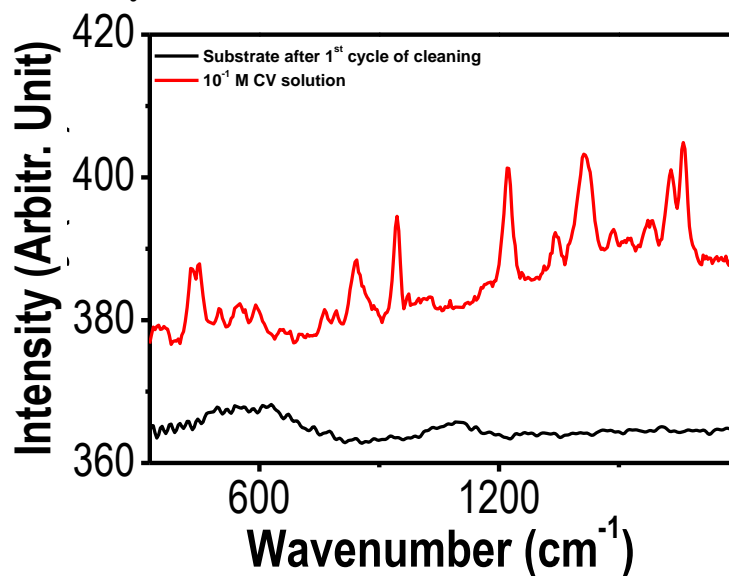
**Figure S6.** XPS spectra of O 1s in (A) Ni NWs, (B) Ni NCs, (C) B<sub>1</sub>, and A<sub>1</sub>.

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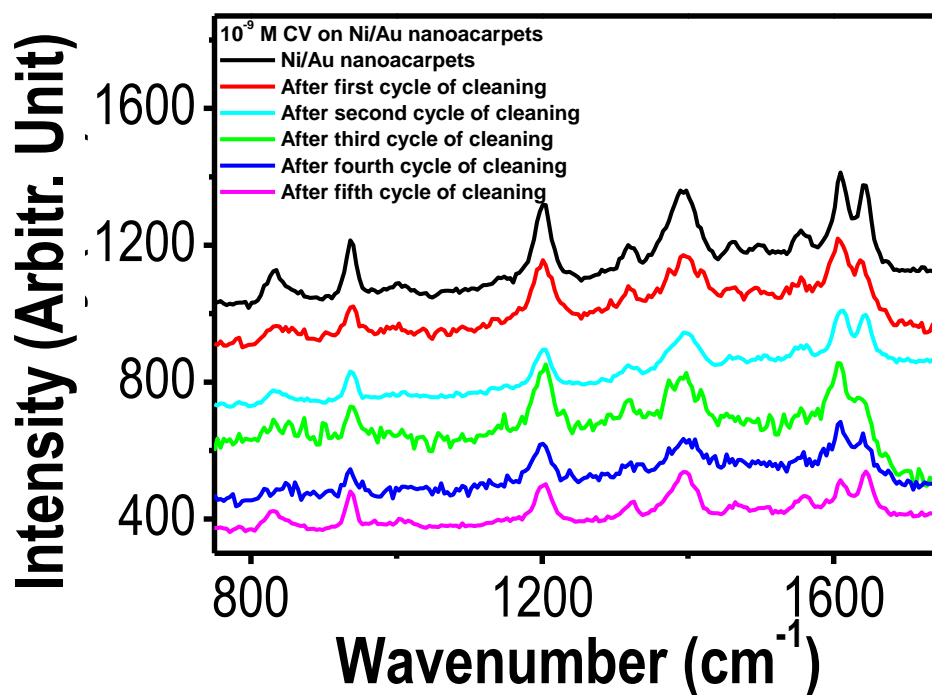
**Figure S7.** Raman spectra of crystal violet solutions of different concentrations adsorbed on **B<sub>1</sub>**.

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**Figure S8.** Raman spectrum of 10<sup>-7</sup> M of CV solution collected using **B<sub>1</sub>** as SERS substrate (red trace). Raman spectrum collected from the **B<sub>1</sub>** after 1<sup>st</sup> cycle of cleaning (black trace). No Raman features of CV were observed.

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**Figure S9.** Raman spectra of  $10^{-9}$  M of CV collected from the same **B<sub>1</sub>** after cleaning the substrate multiple times. After each cycle of cleaning, the sample was exposed to CV.