# Supporting Information

## Gold nanoparticles generated through "Green Route" bind $Hg^{2+}$ with a concomitant blue shift in plasmon absorption peak

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**Contents**

Fig S1 Linear relation ship of wavelength shift against increasing quantities of $Hg^{2+}$.


Fig S2 Photographic images of CH-Au NPs and the same on interacting with 100ppm $Hg^{2+}$.

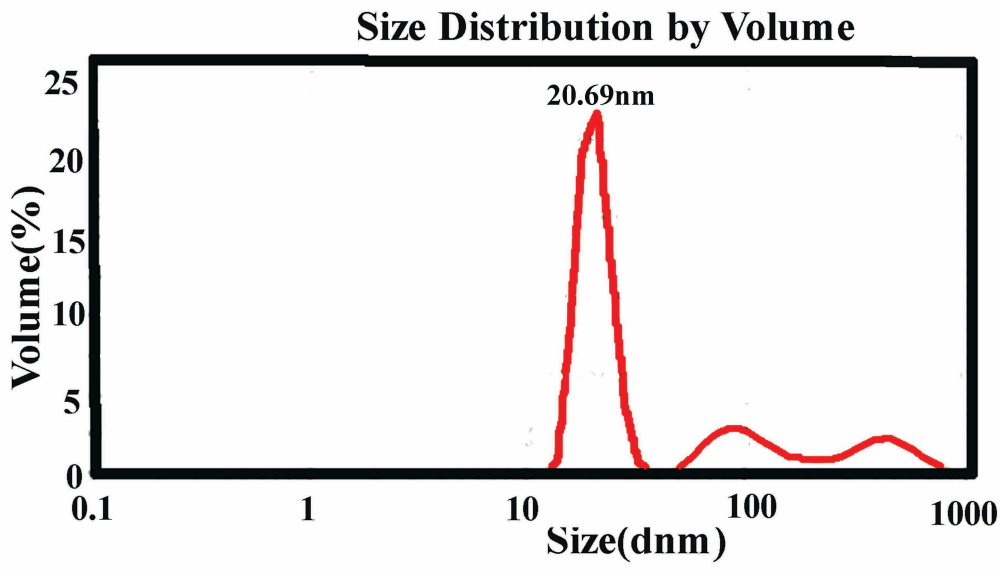


Fig S3 The size distribution of CH-Au NPs by Dynamic Light Scattering method.

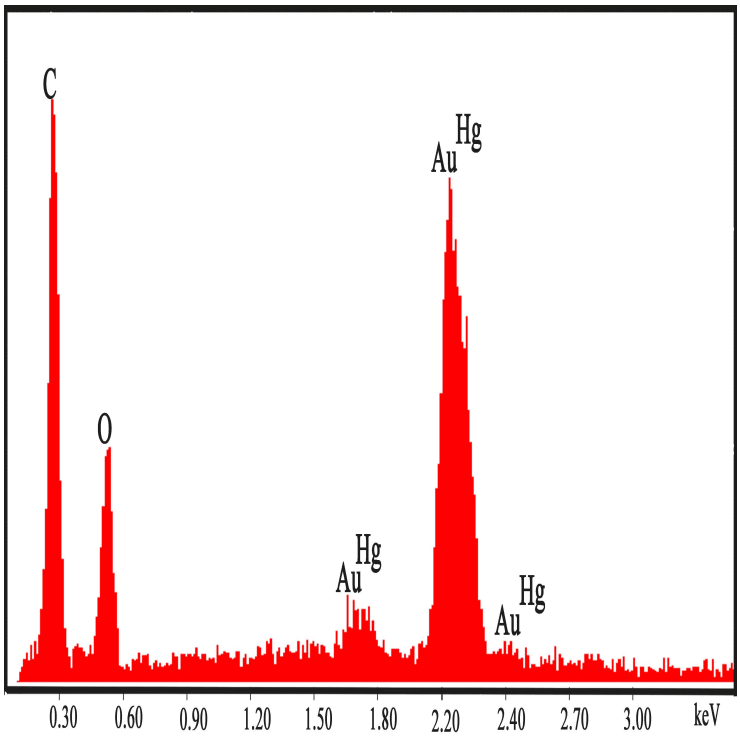


Fig S4 EDS of CH-Au NPs on interacting with $Hg^{2+}$

Fig S5Wavelength shift with Tap water spiked with 10 ppm $Hg^{2+}$. The 6 nm shift is clearly shown in the inset.

Fig S6 Bar diagram showing wavelength shift of CH-Au NPs with 100ppm of other cations.

**Table 1S Calculated Monolayer thickness of Hg ($ML_{Hg}$ ) using Equation 1***

| | |
|---|---|
| **Au core diameter from TEM** | **16± 2nm** |
| **Au-Atomic % from EDS** | **2.14%** |
| **Hg- Atomic % from EDS** | **0.12%** |
| **Calculated Monolayer thickness of Hg ($ML_{Hg}$)** | **0.6± 0.1** |

$$^{*}ML_{Hg} = r_{core}/d_{Hg}\left[\left(1+\frac{V_M^{Hg}[Hg]}{V_M^{core}[core]}\right)^{1/3}-1\right] \text{------(1)}$$

$r_{core}$ is the radius of the Au core, $d_{Hg}$ is the diameter of a mercury atom, $V_M$ is the molar volume and [core] and [Hg] are the atomic concentrations measured by EDS