

Electronic Supporting Information (ESI) for:

Highly Stable Graphene Oxide-Gold Nanoparticle Platforms for Biosensing Applications

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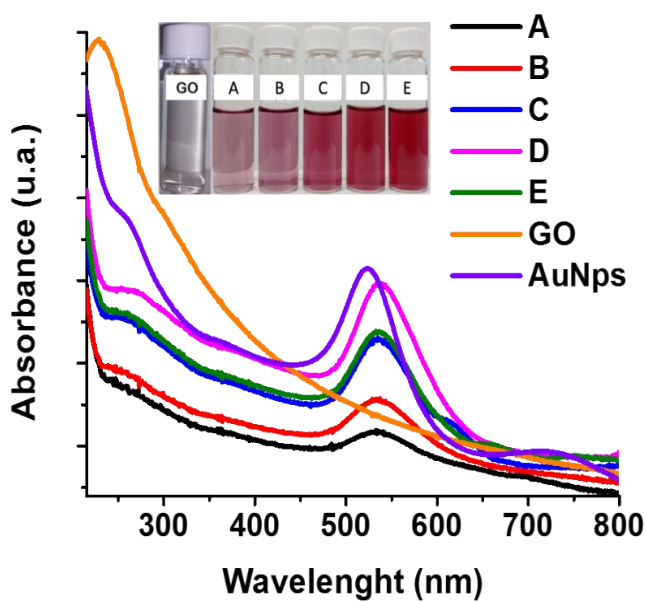


Fig. ESI-1. Uv- visible spectra of GO and Au@GO hybrids (**A**= 0.12, **B**= 0.25, **C**= 0.37, **D**=0.50 and **E**=0.62, H_{AuCl₄} mM).

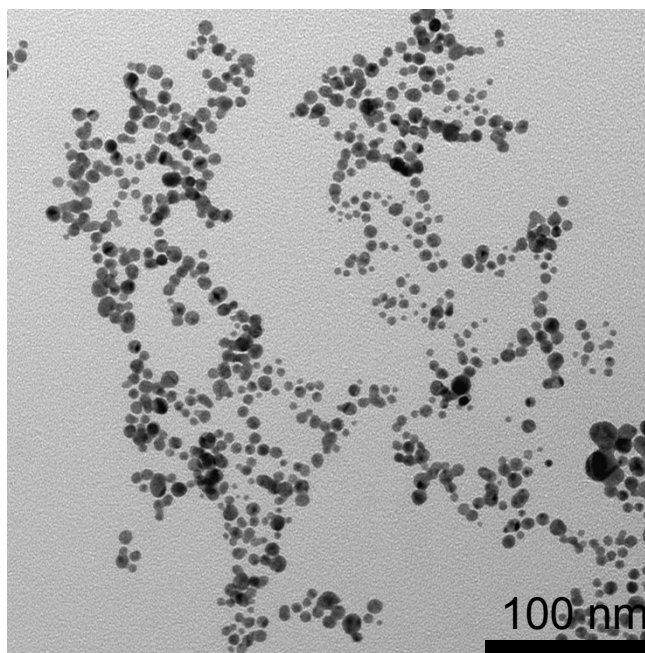


Fig. ESI-2. TEM of AuNP grown at the same experimental conditions lacking of GO.

CV in bulk Raman shift (cm^{-1})	CV solution $1.0 \times 10^{-6} \text{M}$ Raman shift (cm^{-1})	CV on Au@GO hybrids Raman shift (cm^{-1})						Assignment
		GO	A-CV	B-CV	C-CV	D-CV	E-CV	
430	428	---	438	437	437	432	433	Out-of-plane Ph-C ⁺ -Ph bending
560	566	---	565	567	570	563	565	Ring skeletal vibration
726	737	---	735	735	735	730	735	Out-of-plane ring C-H bending
760	---	---	---	775	775	769	775	Out-of-plane ring C-H bending
806	---	---	815	814	816	810	816	Out-of-plane ring C-H bending
916	926	---	928	925	925	921	924	Ring skeletal vibrations
1182	---	---	1178	1173	1180	1171	1180	In-plane C-H bending
1301	1300	---	1300	1300	1300	1298	1300	Ring C-C stretching 1617
1370	1380	---	1378	1378	1378	1380	1383	N-phenyl stretching
1536	1545	---	---	1542	1542	1541	1542	Ring C-C stretching
1584	1592	---	1592	1592	1592	1588	1592	Ring C-C stretching
1617	1627	---	1627	1628	1628	1624	1626	Ring C-C stretching

Fig. ESI-3. Characteristic Raman bands of CV and their shift on the nanohybrid, AuNP@GO-CV.

FAD ν [cm^{-1}]	FAD on Au@Go hybrid ν [cm^{-1}]	Assignment
-----	1088	P-O-C, C-O, C=S
-----	1156	PO-Et, C-O-C, C-N
1229	1232	ν (C ₆ -C ₇), ν (C ₈ -Me)
1260	-----	ν (C ₄ -C _{4a}), ν (C ₄ -N ₃)
1318	-----	ν (N ₅ -C _{5a}), $\delta^s\text{CH}_3^{\text{II}}$
1355	1347	ν (C _{5a} -C ₆), ν (N ₁₀ -C _{10a}), ν (C _{5a} -C _{9a})
1404	1403	ν (C ₂ -N ₁), ν (C ₂ -N ₃), ν (C _{5a} -C ₆), ν (C ₈ -C ₉)
1462	1459	ν (C ₇ -C ₈), ν (C ₈ -Me)
1501	1502	ν (C _{4a} -N ₅), ν (C _{9a} -N ₁₀)
1541	1536	ν (N ₁ -C _{10a}), ν (C _{4a} -N ₅)
1581	1574	ν (N ₁ -C _{10a}), ν (N ₁₀ -C _{10a})
-----	1609	
1625	1624	ν (C _{5a} -C _{9a}), ν (C _{4a} -N ₅)

Fig. ESI-4. Characteristic Raman bands of FAD and their shift on the nanohybrid AuNP@GO-FAD.

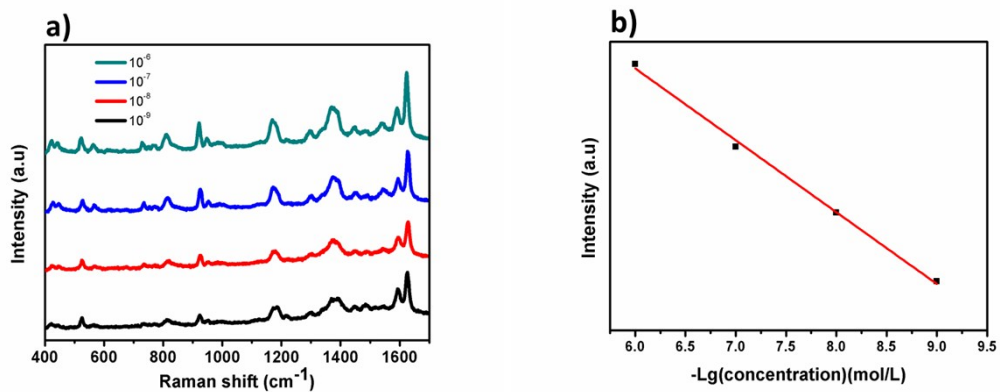


Fig. ESI-5. a) Surface enhanced Raman spectra of AuNP@GO-CV. b) Calibration curve.

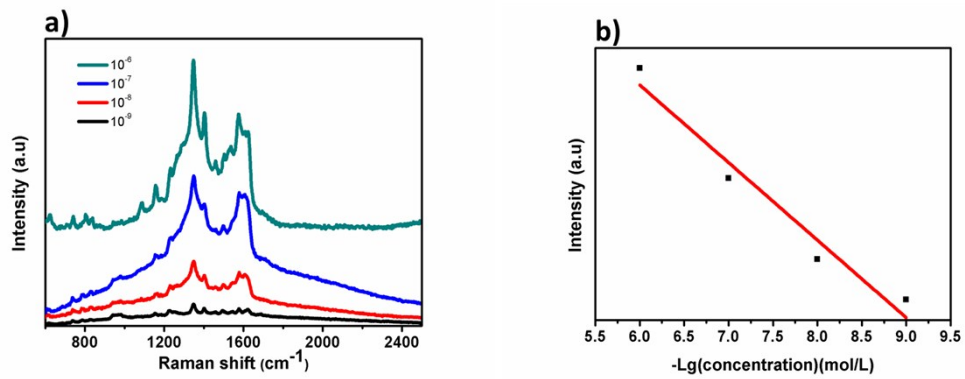


Fig. ESI-6. a) Surface enhanced Raman spectra of AuNP@GO-FAD. b) Calibration curve.