Supplementary Material (ESI) for Green Chemistry

Supporting Information

S1: Synthesis Procedure

All reagents were used as received without further purification. Vitamin B_2 (Riboflavin), $HAuCl_4.3H_2O$ (99.99%), and $Na_2PtCl_6.6H_2O$ (99.99%) were purchased from Acros Organics. In all experiments, Milli-Q water was used.

50 mg of riboflavin was dissolved in 20 mL (in a glass vial) solvents of varying density such as ethylene glycol (ρ=1.113), acetic acid (ρ=1.049), *N*-methylpyrrolidinone (NMP) (ρ=1.028), water (ρ=0.998), isopropanol (ρ=0.790), acetone (ρ=0.790), and acetonitrile (ρ=0.782) in separate experiments. To this, 2 mL of aqueous solution containing 1 X 10^{-2} M $HAuCl_4$ was added at room temperature and hand shaken for a minute and allowed to settle. Within few minutes Au nanoparticles started forming and their formation was confirmed using UV spectroscopy and energy dispersive X-ray analysis (EDX). Similarly, experimental procedures were carried out using 1 X 10^{-2} M $Na_2PtCl_6.6H_2O$ aqueous solution. TEM specimens were prepared by placing 1μL of the particle solution on a carbon-coated copper grid and drying at room temperature. Transmission electron microscopy (TEM) was performed with a JEOL-1200 EX II microscope operated at 120 kV.

Figure S2

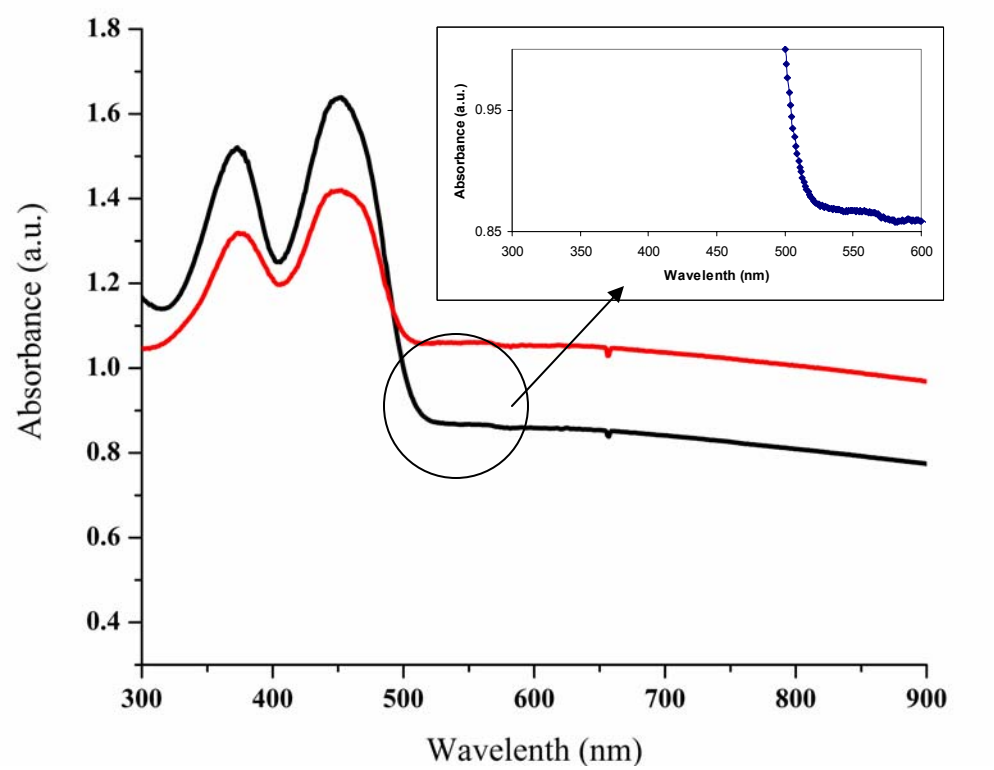

Figure S2. UV of oxidized vitamin B_2: Black plot corresponds to Au with oxidized vitamin B_2 (inset shows enlarged marked portion displaying plasma resonance peak for Au observed at 560 nm). Red plot corresponds to Pt and there is no plasma resonance peak observed in the visible range except oxidized peaks of vitamin B_2.