Development of ultrasensitive and arsenite selective upconverting

(NaYF₄: Yb³⁺, Er³⁺) Platform

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Figure S1. GCMS spectra of M. oleifera extract showing presence of catechol alongside fatty acid ester compounds



Figure S2. Absorption spectra of M.oleifera alone and with addition of As (III) 4 and 30 nM solutions



Figure S3. Attenuated total reflectance spectra of UCP synthesized using M. oleifera leaf extract



Figure S4. Inverted fluorescence microscopic images revealed fairly good coverage of upconverting nanostructures over large span of glass substrate (a) Bright field images indicating upconverting platform integrity and consistency (b) Few empty patches, and pin-holes over the entire surface of substrate.



Figure S5. Luminescence output from the UCP synthesized using M. oleifera leaf extract upon near infrared excitation from CW ~980 nm laser.



Figure S6. UCP@M.oleifera prepared over plain glass substrate showing its excellent transparency



Figure S7. Optical density of prepared UCP@M.oleifera



Figure S8. I_{signal} vs. Intensity plot for 3 UCP @ M. oleifera in the entire detection range of As³⁺ (a) Platform 1 (b) Platform 2 (c) Platform 3



Figure S9. Linear fit of the calibration plot using least square method for 3 UCP @ M. oleifera (a) Platform 1 (b) Platform 2 (c) Platform 3

Table S1. As³⁺ Detection limit obtained from different UCP @ M. oleifera

UCF Platform No.	Equation of line	LOD (ppt)	LOQ (ppt)
1	0.21474x + 0.00516	5.72	57.2
2	0.11073x + 0.01073	28.48	284.8
3	0.14544 x - 0.0146	32.20	322