Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Highly selective and reproducible detection of picric acid in aqueous media based on polydiacetylene microtube optical waveguide

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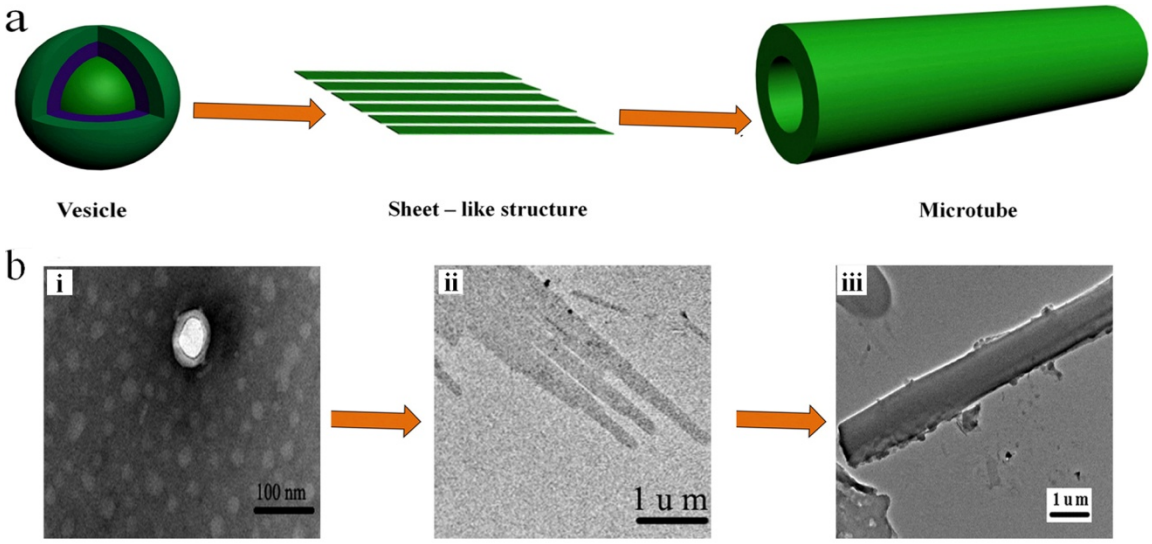

Figure S1. (a)Schematic illustration of the self-assembly process of PDA microtubes.(b)TEM images of the assembly at different stages: i) the as-prepared hybrid vesicle, ii) nano-ribbon continue combined and formed a sheet structure as the intermediates. iii) microtube was formed after incubation for 2 weeks.

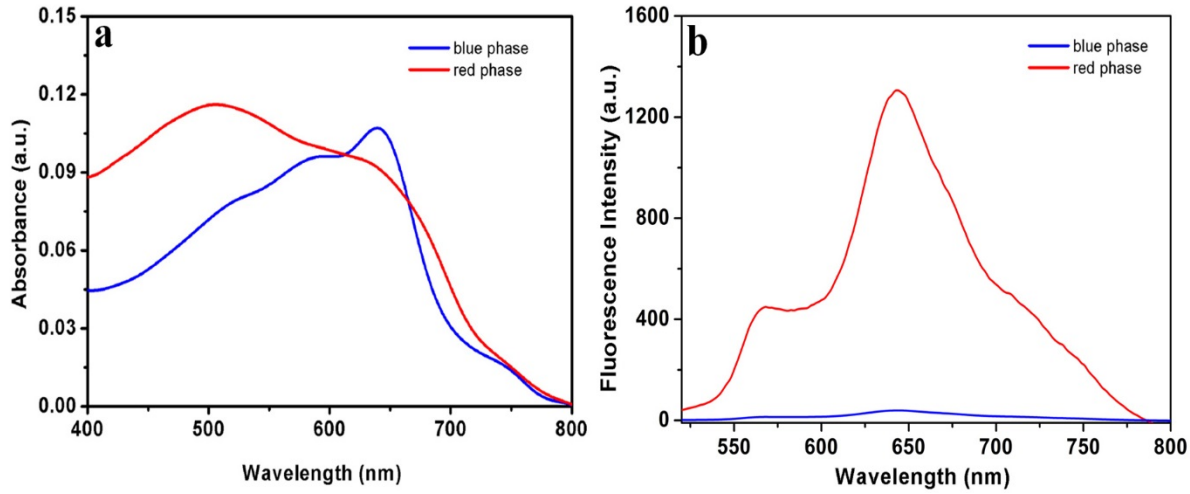

Figure S2.a) UV-visible absorption spectra and b) Fluorescence spectra of blue-phase and red-phasePDA microtube, respectively.

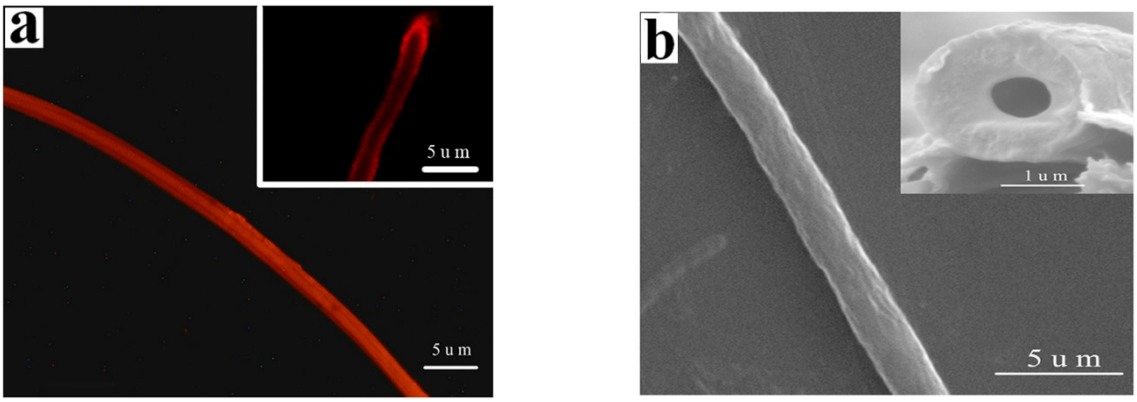

Figure S3.(a)Fluorescent microscope image of the red-phase PDA microtube (inserted: Laser Confocal Microscopy image of the PDA microtube) and (b) SEM characterization of the as-prepared PDA microtube (Inserted: Cross-sectional SEM of the broken microtube).

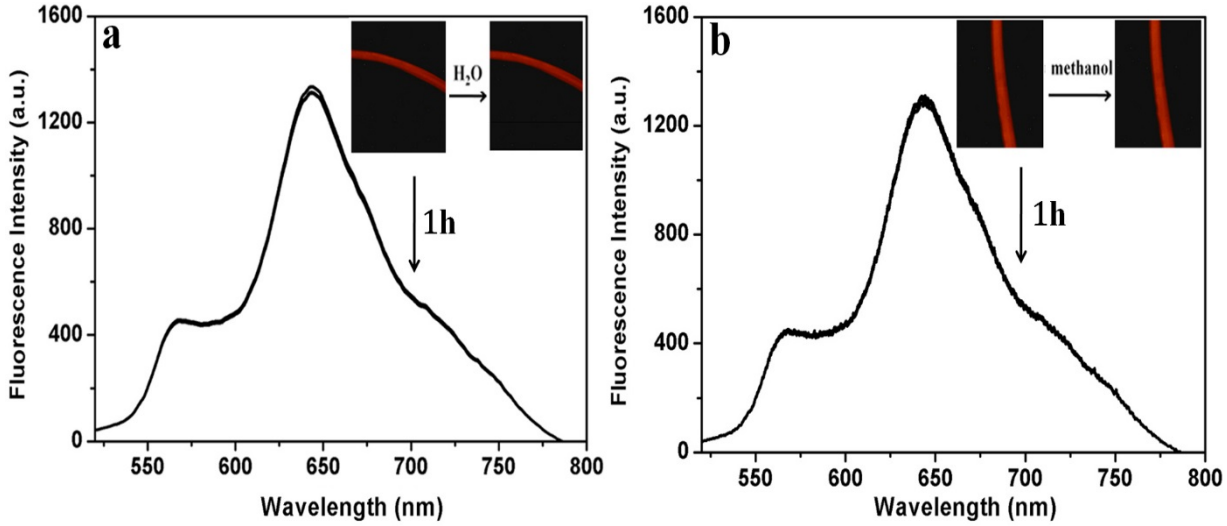

Figure S4. Time dependence of the Fluorescence spectra for PDA microtube in a) water, or b) methanol. The fluorescence spectrum remained almost unaffected even after immersion into water or methanol for 1h.

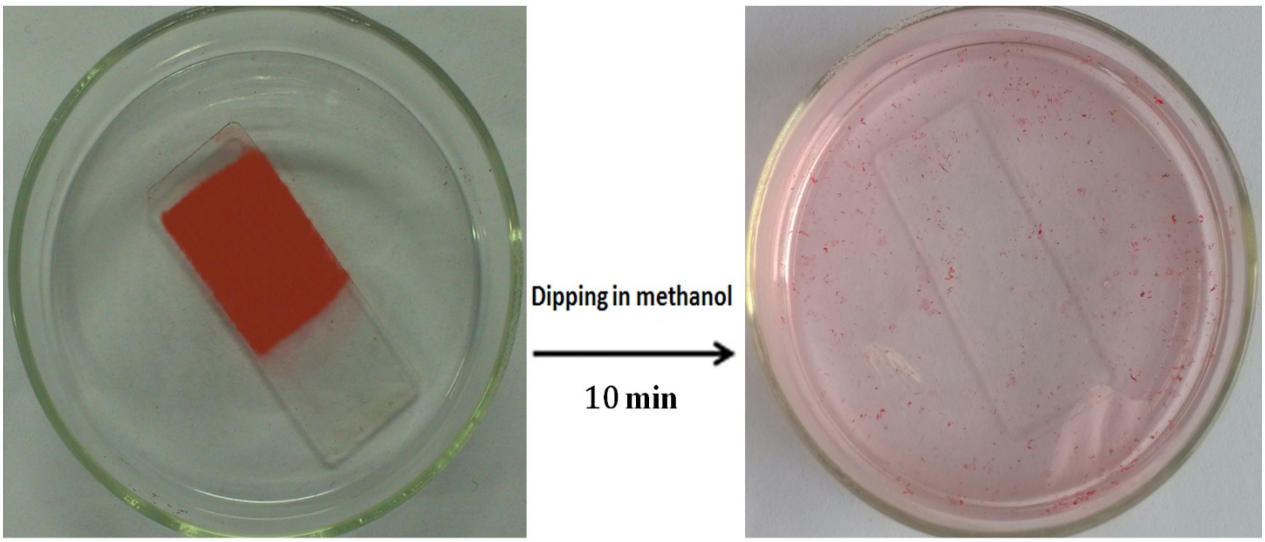

Figure S5. Optical Microscopy image of PDA LB film before and after dipping in methanol for 10 min. PDA LB films showed poor stability upon immersion into methanol.

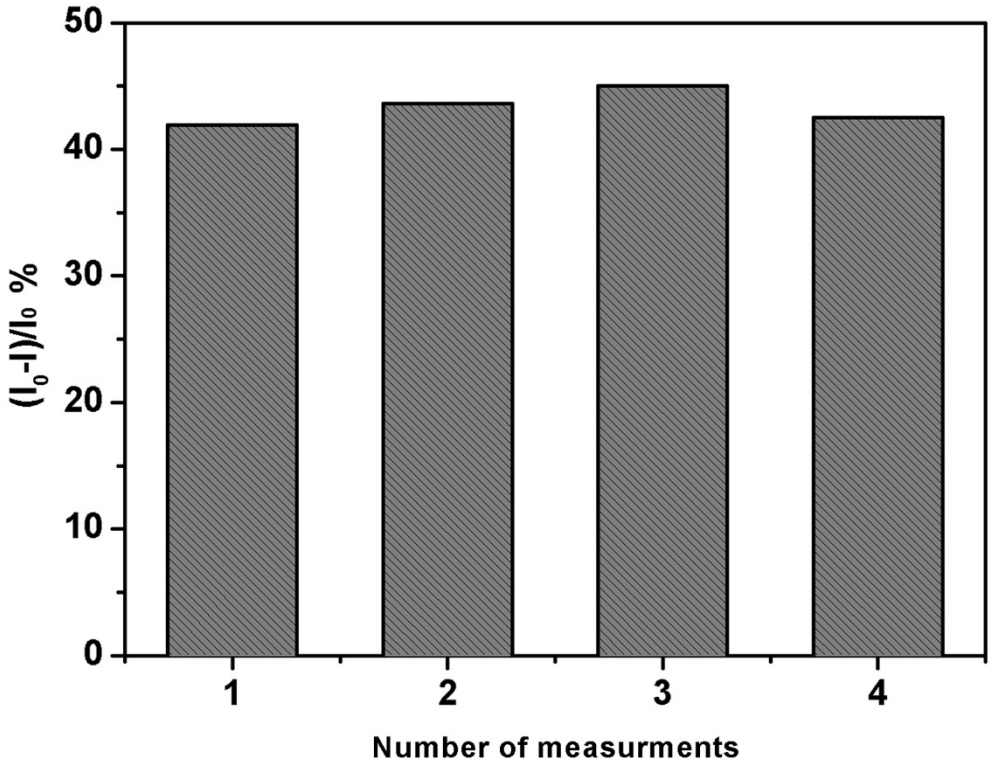

Figure S6. Reproducibility of the fluorescent response of PDA microtube in the presence of TNP with the same concentration of 50 μM.

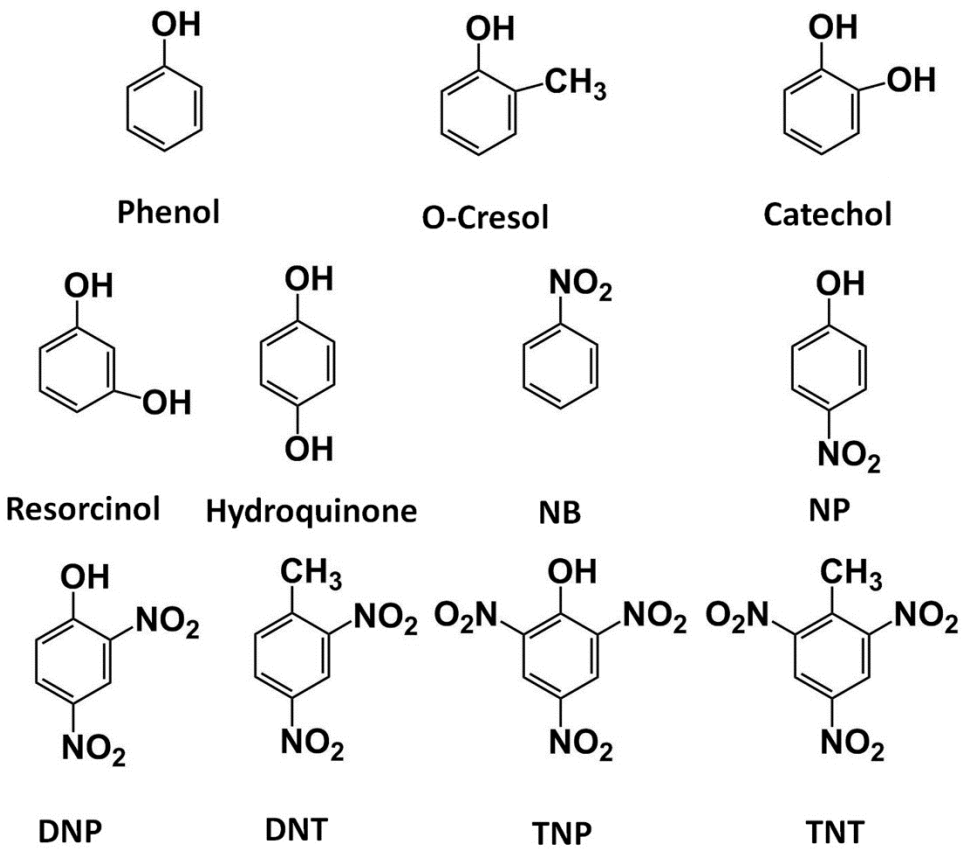

Figure S7. Molecular Structure of the different nitro aromatics (NACs) used in the present study.

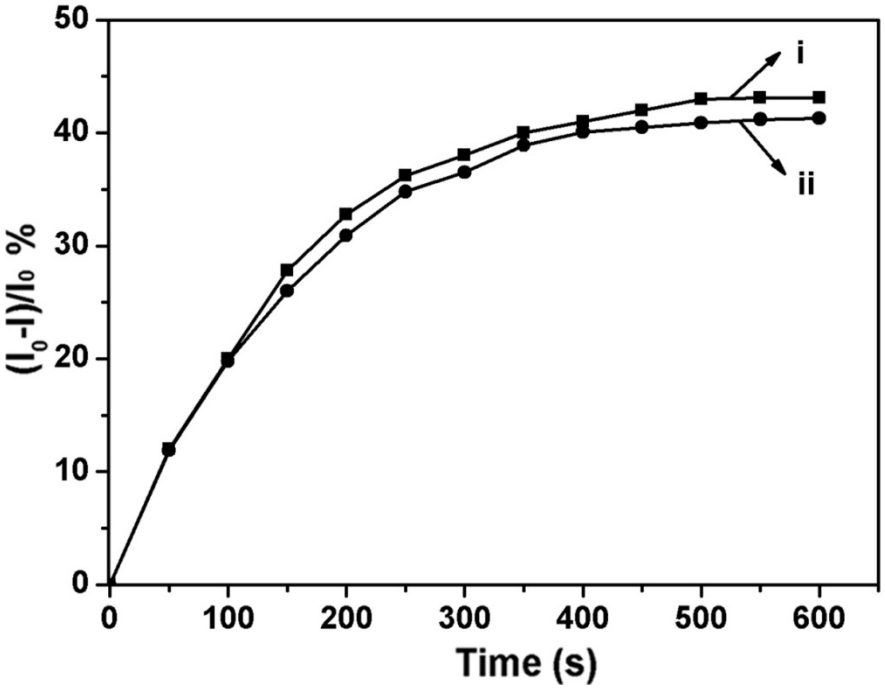

Figure S8. Time dependence of the fluorescence response for PDA microtube in the presence of TNP with the same concentration of 50 μM:i) in water, or ii) in methanol.

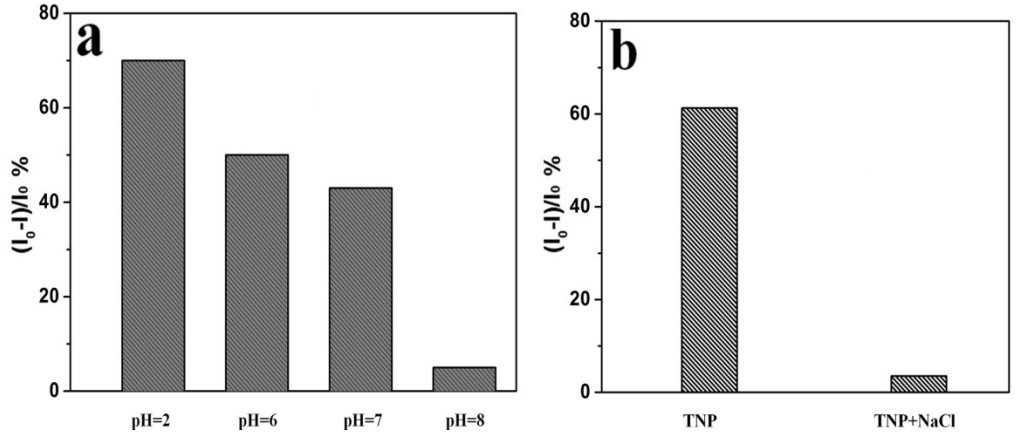

Figure S9. (a)Effect of pH on the fluorescence response for PDA microtube with TNP. (b) Fluorescence response for PDA microtube with TNP in the absence or the presence of NaCl (0.5 M, in water). The concentration of TNP in above experiments were kept constant (50 μM, in water).