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A selective fluorescent probe based on citrate doped polypyrrole for dual determination of VO^{2+}/Fe^{3+} in biological samples

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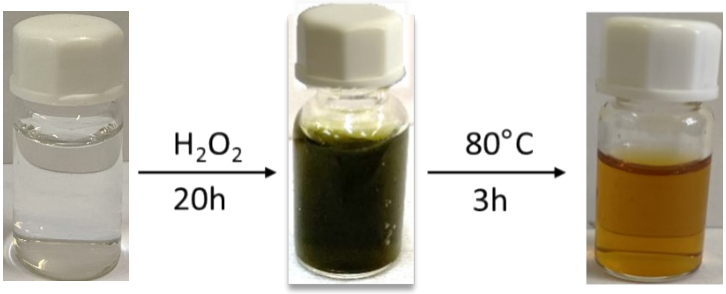

Fig. S1. Synthesis procedure of water-soluble PPy-Cit conjugated polymer

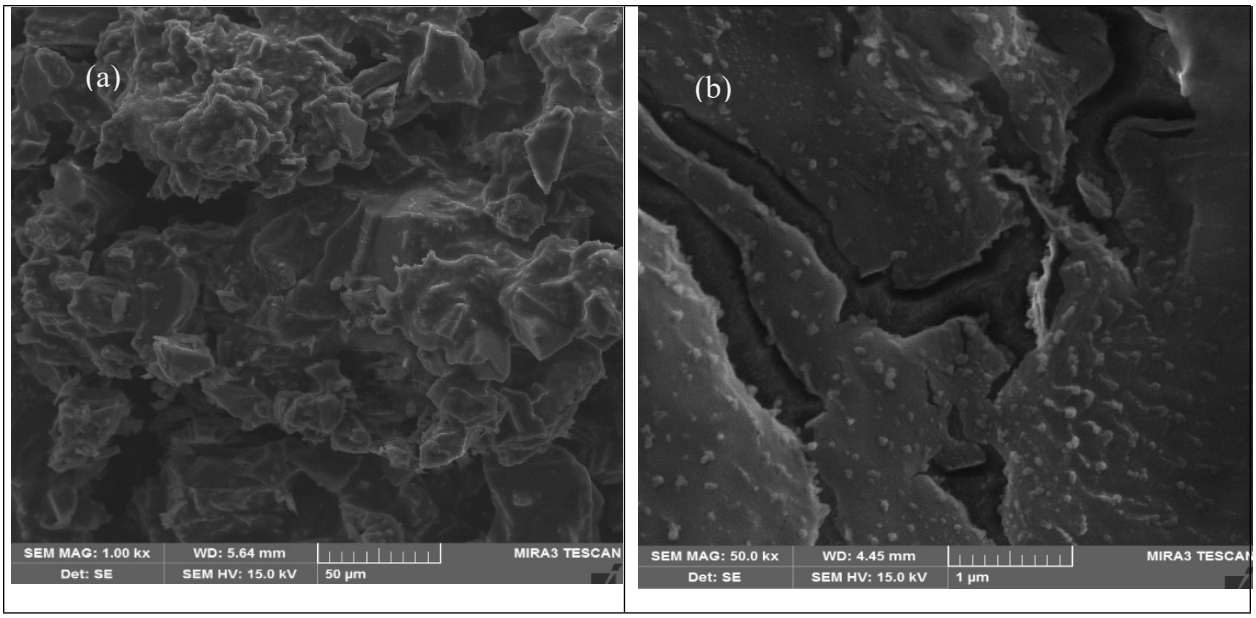

Fig. S2. SEM image of PPy-Cit polymer in 1000 (a) and 50000 (b) magnifications.

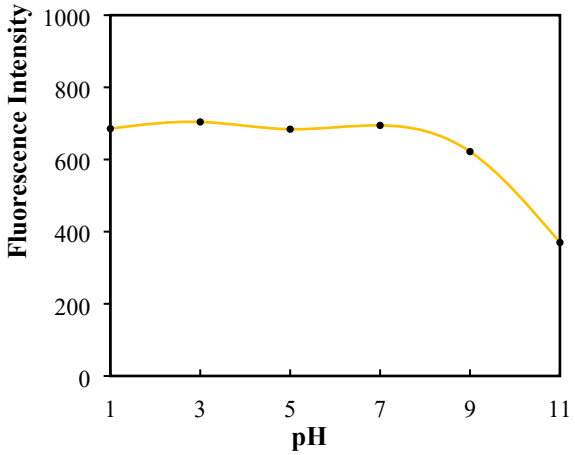

Fig. S3. Fluorescence intensity of 250 times diluted PPy-Cit solution in different pH, excitation wavelength =395 nm and emission wavelength = 460 nm.

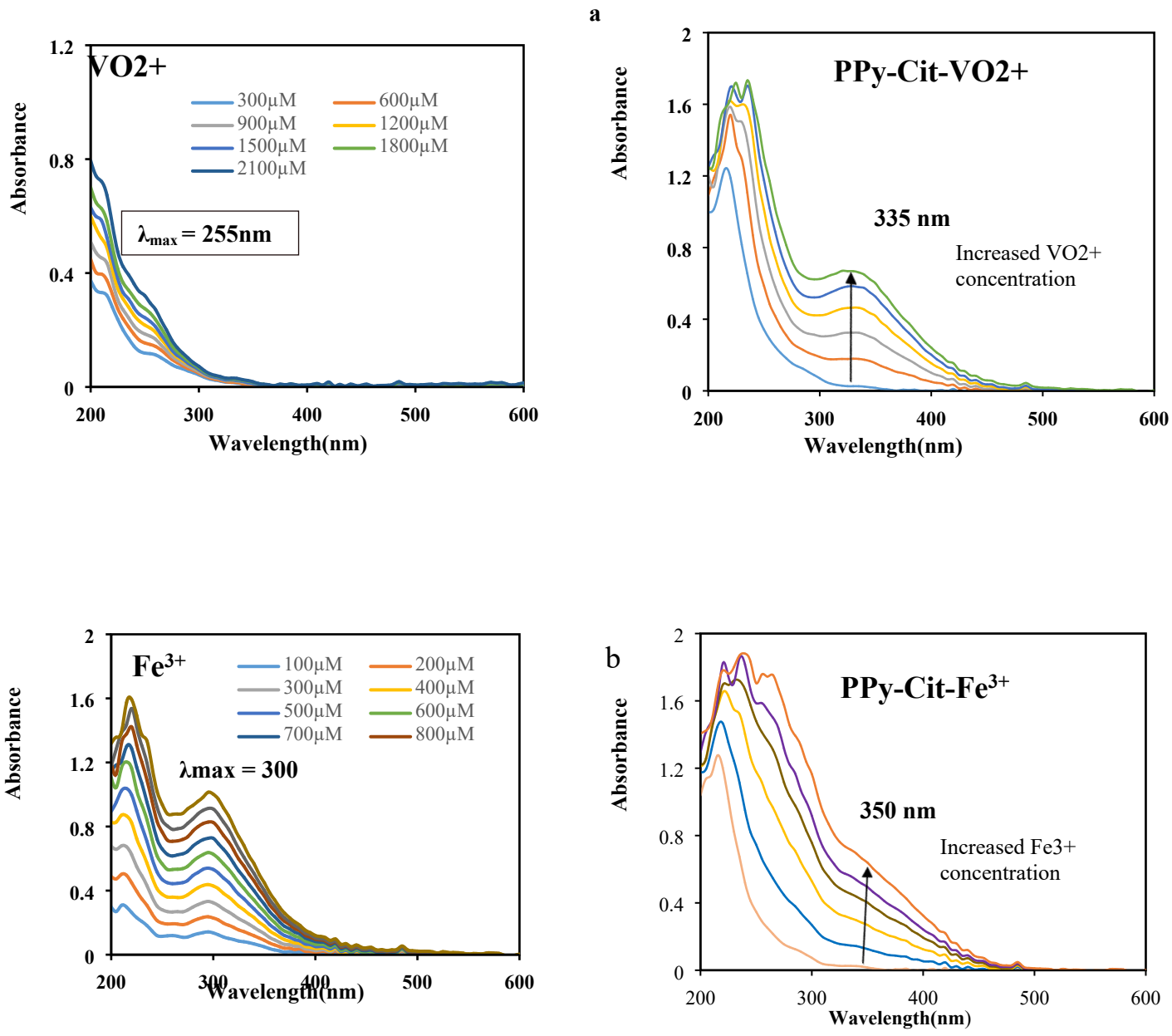

Fig. S4. UV-vis spectrum of the added ions at different concentrations and PPy-Cit in presence of added ions, a: VO^{2+} (0, 250, 500, 750, 1000, 1250 µM); b: Fe^{3+} (0, 150, 250, 350, 450 and 550 µM).

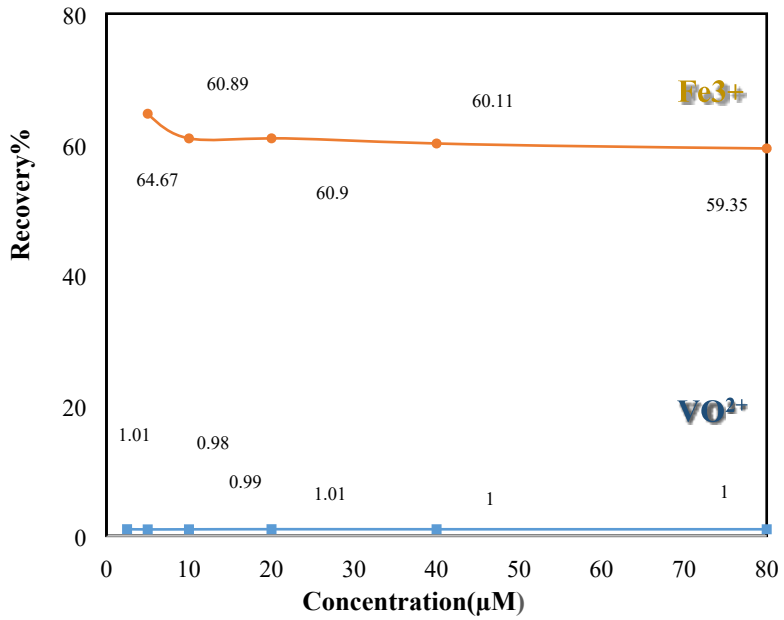

Fig. S5. Fluorescence intensity recovery percent, after adding EDTA (100 μM) to PPy-Cit-VO^{2+} (lower curve) and PPy-Cit-Fe^{3+} (upper curve) system.

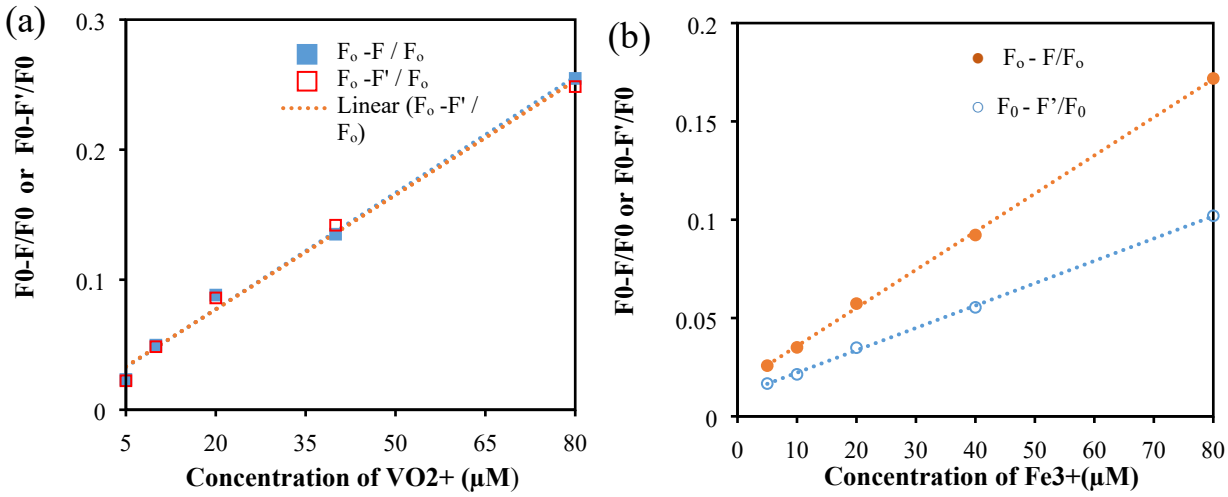

Fig. S6. Calibration curve before (solid symbol) and after (hollow symbol) adding EDTA (equal concentration of EDTA to VO^{2+} and Fe^{3+} concentration) to PPy-Cit-VO^{2+} system (a), and PPy-Cit-Fe^{3+} system (b); where F and F ' are fluorescence intensity before and after adding EDTA to PPy-Cit-VO^{2+} and PPy-Cit-Fe^{3+}, respectively.

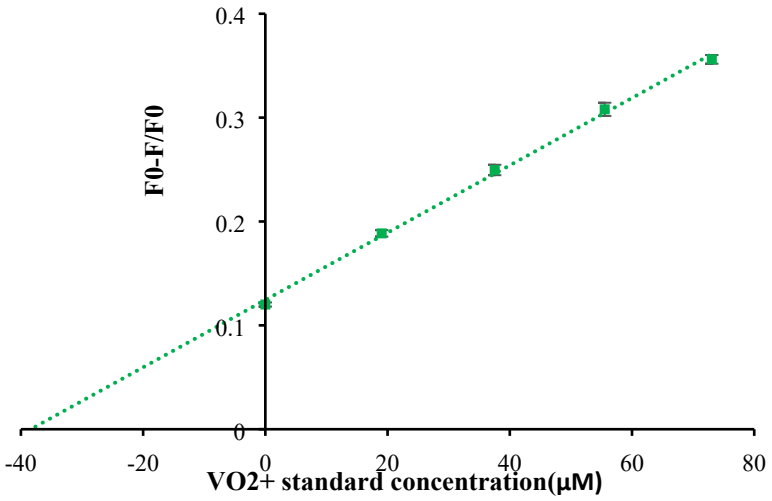

Fig. S7. Standard addition method for analysis of VO^{2+} in vanadyl sulfate tablet (addition of 0, 25.6, 50.9, 75.9 and 100.5 μM). The error bars represent the triplicate measurements.

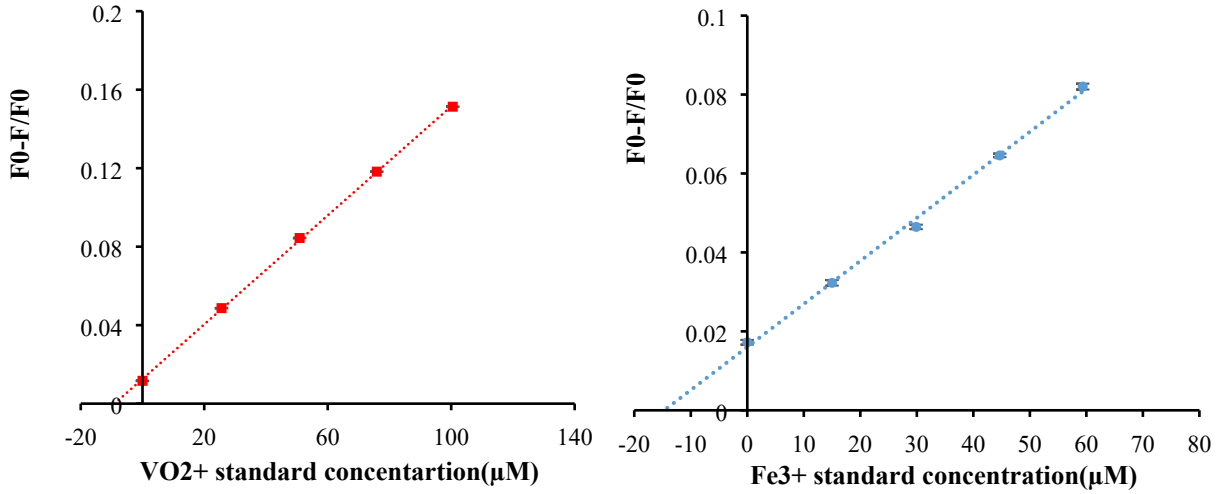

Fig. S8. Standard addition method for analysis of VO^{2+} in serum 2 (addition of 0, 25.6, 50.9, 75.9 and 100.5 μM) (A) and Fe^{3+} in 30μM spiked serum 6 (B) (addition of 0, 15, 22.7, 44.7 and 59.3μM)

Table S1. Relative response (F_0-F/F_0) of PPy-Cit sensor to different concentrations of VO^{2+} in the presence of Fe^{3+}ions at various delay times.

Concentration (μM)		% Quenching after		Measurement (μM)		Recovery %	
VO^{2+}	Fe^{3+}	0.5 min	20 min	VO^{2+} after 0.5 min	Fe^{3+} after 20 min	VO^{2+}	Fe^{3+}
5	5	3.1	5.6	5.23 (± .11)[a]	5.65 (± .01)	104.6	113
10	20	4.6	12.6	10.18 (±. 09)	19.06 (± .05)	101.8	95.5
20	40	7.7	24	20.57(± .04)	39.98(± .1)	102.9	100.0

[a] Standard deviation for three replicate