ELECTRONIC SUPPLEMENTARY INFORMATION

CHITOSAN-MODIFIED COTTON THREAD FOR THE PRECONCENTRATION AND COLORIMETRIC TRACE DETERMINATION OF Co(II)

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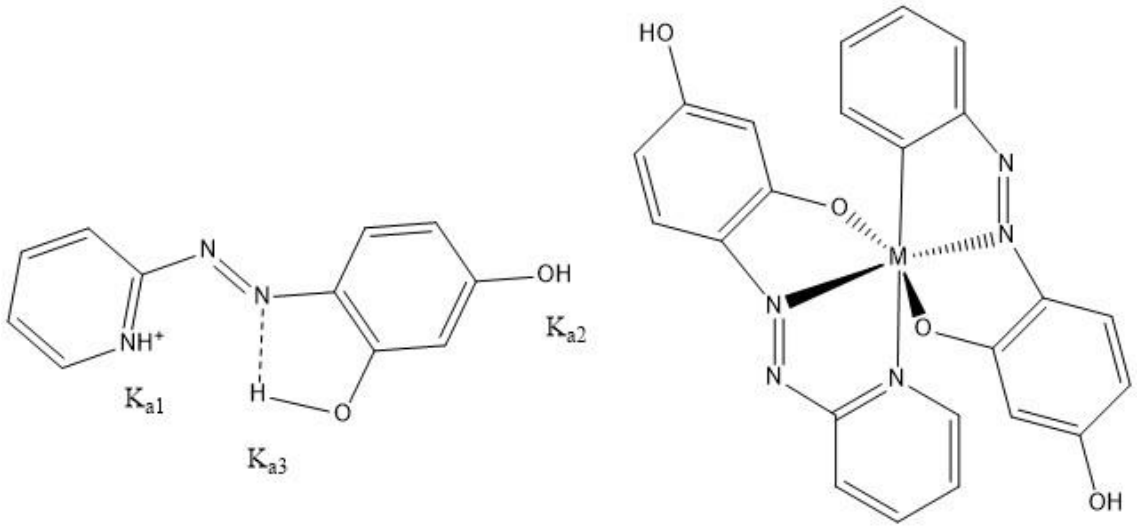

Figure S1. 4-(2-pyridylazo) resorcinol (PAR) molecule (left) and PAR complex (right).

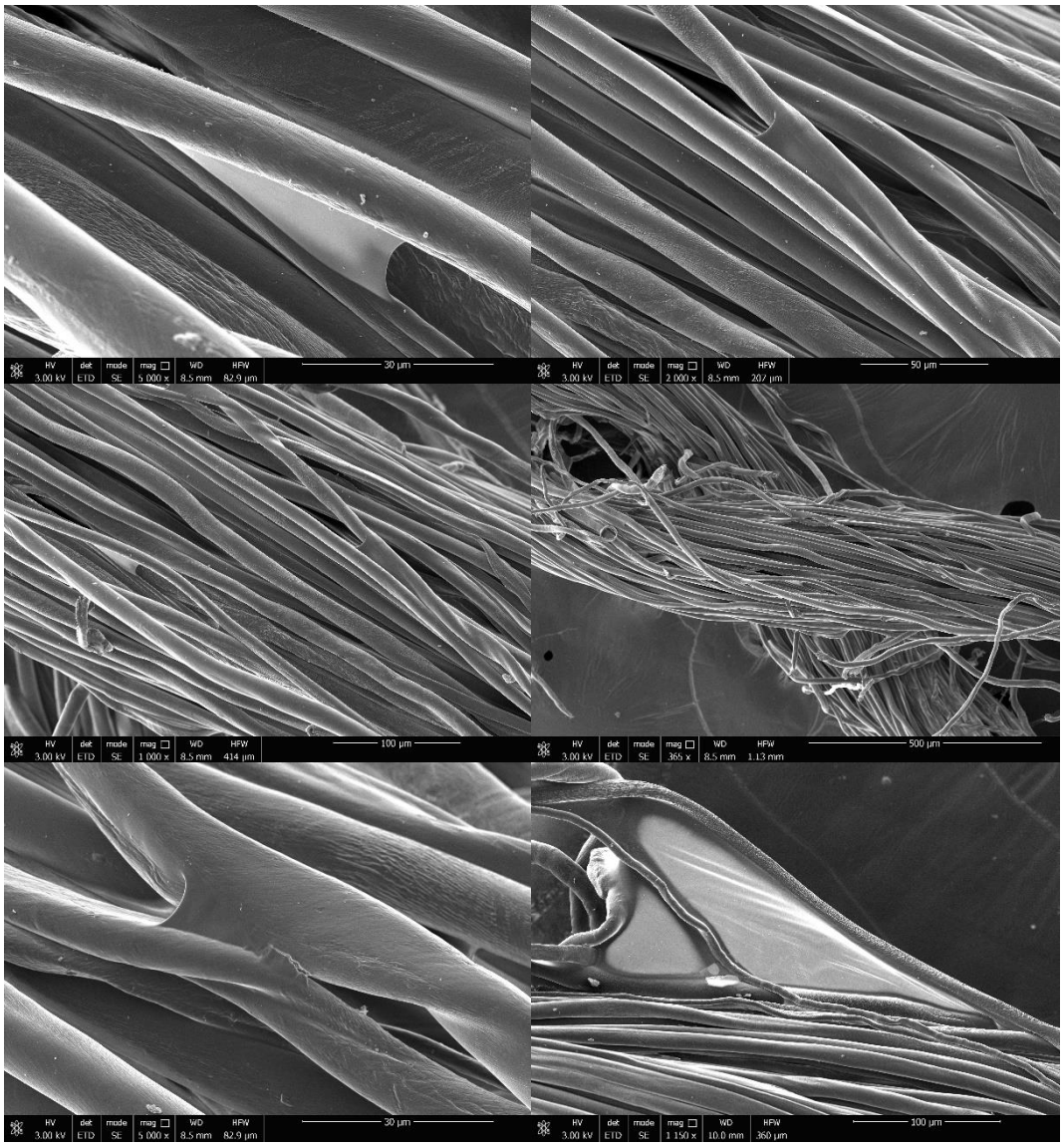

Figure S2. Different images of μTAD sensing zone containing chitosan. Obtained with FEG–ESEM, QuenScan 650F FEI© electronic microscope together with an Everhart–Thornley detector (ETD), circular backscatter detector (CBS) and energy-dispersive detector (EDS). From Centre for Scientific Instrumentation, University of Granada, Spain.

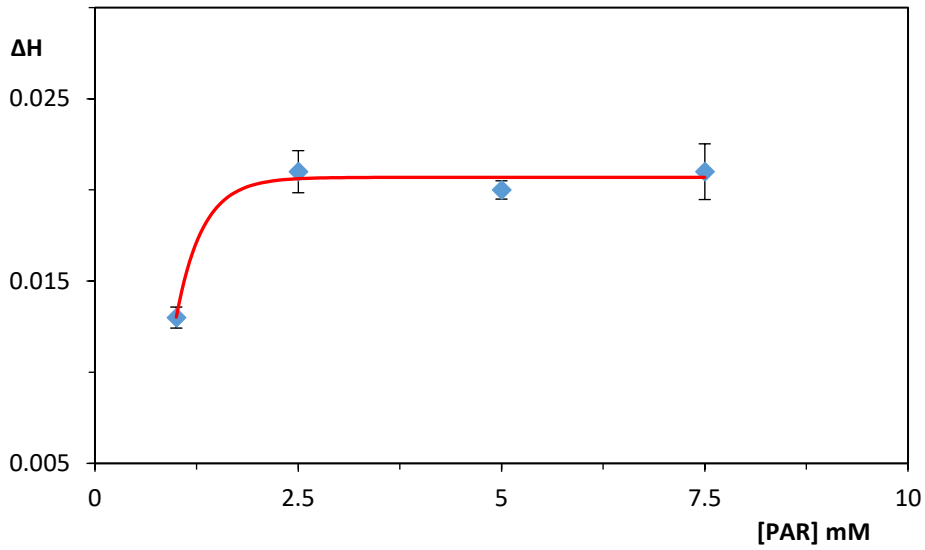

Figure S3. Study of the influence of PAR concentration on ΔH (H_{PAR}-$H_{PAR\text{-}Co}$).

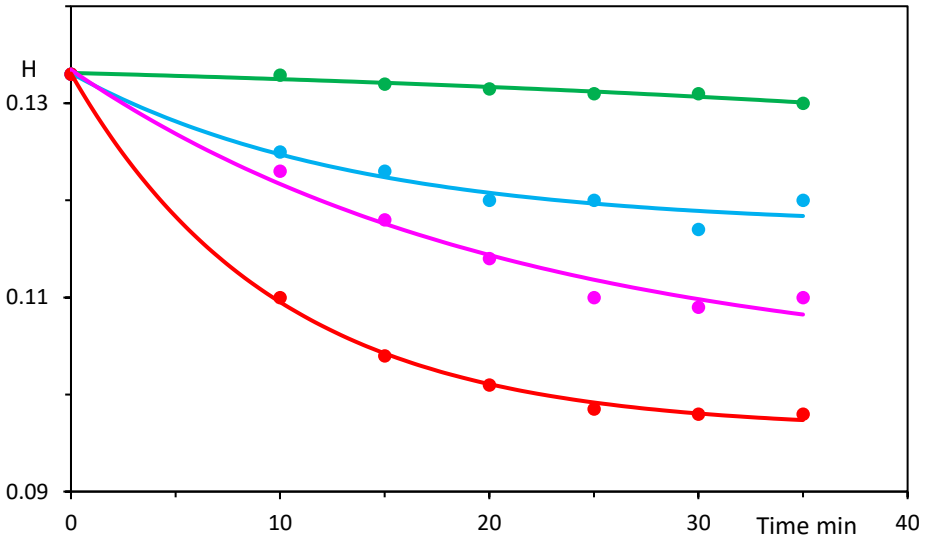

Figure S4. Evolution of H with time at different Co(II) concentrations: 50 µg·L^{-1} (green data), 100 µg·L^{-1} (blue data), 150 µg·L^{-1} (magenta data) and 200 µg·L^{-1} (red data).

Table S1. Determination of Co(II) in spiked water samples using Atomic Absorption Spectrometry (AAS) as reference method (n=3)

Sample	Found ($\mu g \cdot L^{-1}$)	Added ($\mu g \cdot L^{-1}$)	µTAD ($\mu g \cdot L^{-1}$)	AAS ($\mu g \cdot L^{-1}$)	|Error| (%)
Tap water	<6.5	50	52±2	49.2± 0.3	5.7
	<6.5	100	99±2	101.0±0.5	2.0
	<6.5	150	155±3	152.0±0.1	1.7
	<6.5	200	208±2	199.5±0.2	4.3
	<6.5	250	262±3	248.9±0.2	5.3
	<6.5	300	288±3	301.2±0.4	4.4

Table S2. Figures of merit of microfluidic devices for Co(II) determination in water.

Substrate	Linear Range	LOD	Reference
Paper	Qualitative	50 µM	[1]
Paper	Semiquantitative	0.5 $\mu g \cdot L^{-1}$	[2]
Paper	590 – 5.9 x 10^5 $\mu g \cdot L^{-1}$	58.9 $\mu g \cdot L^{-1}$	[3]
Paper	500 – 2000 $\mu g \cdot L^{-1}$	590 $\mu g \cdot L^{-1}$	[4]
Paper	10-1000 µM	1 µM	[5]
Thread	25 -600 $\mu g \cdot L^{-1}$	6.50 $\mu g \cdot L^{-1}$	This work

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