Supplementary information

Prospective Application of Diethylaminoethyl Cellulose (DEAE-Cellulose) with a High Adsorption Capacity toward the Detoxification of 2, 4 Dichlorophenoxyacetic acid (2,4-D) from Water

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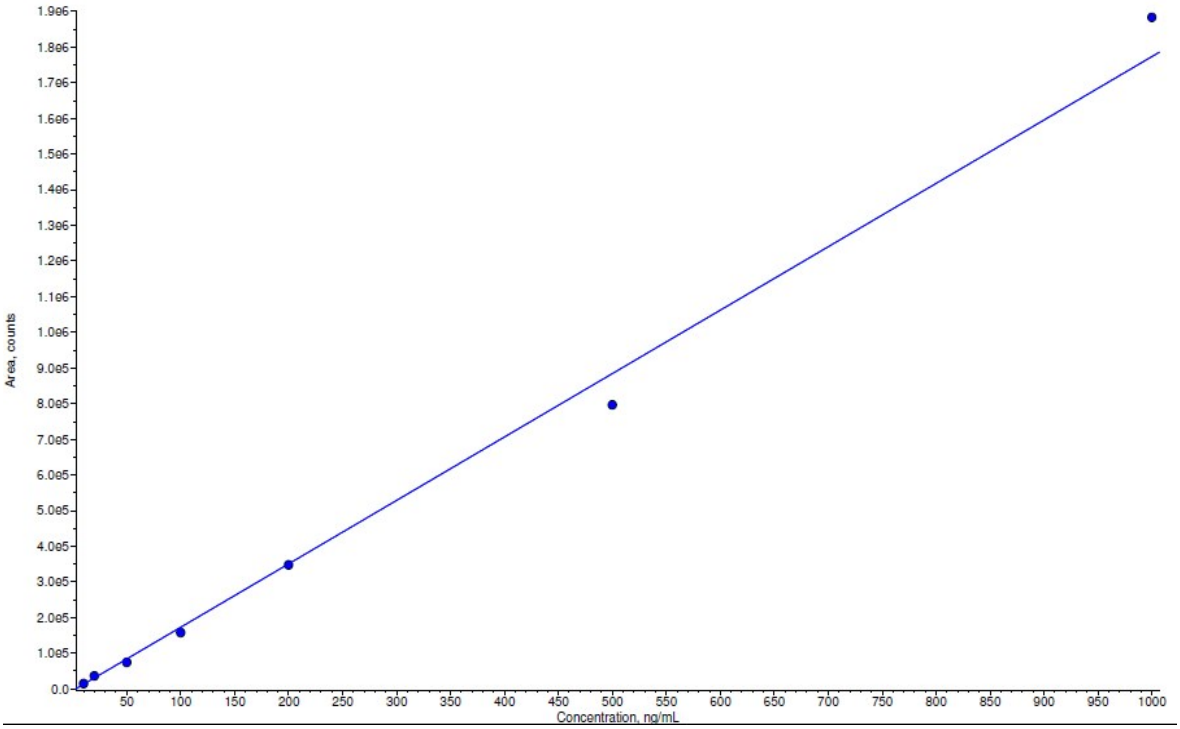

Figure S1(a). Calibration curve for 2,4-D

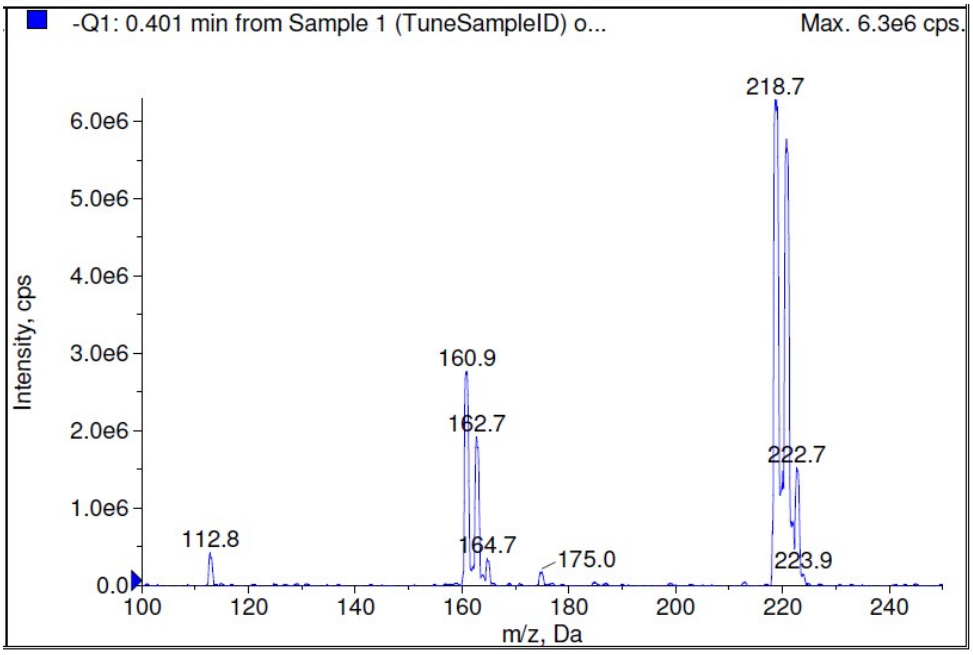

Figure S1(b).Precursor ion scan of 2,4-D in LC-MS/MS

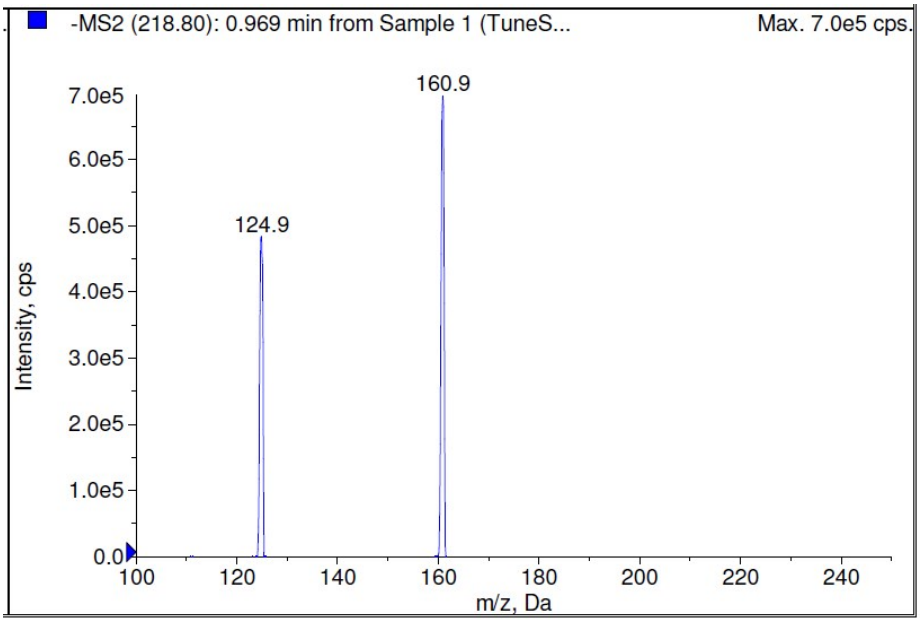

Figure S1(c). Product ion spectra of 2,4-D in LC-MS/MS

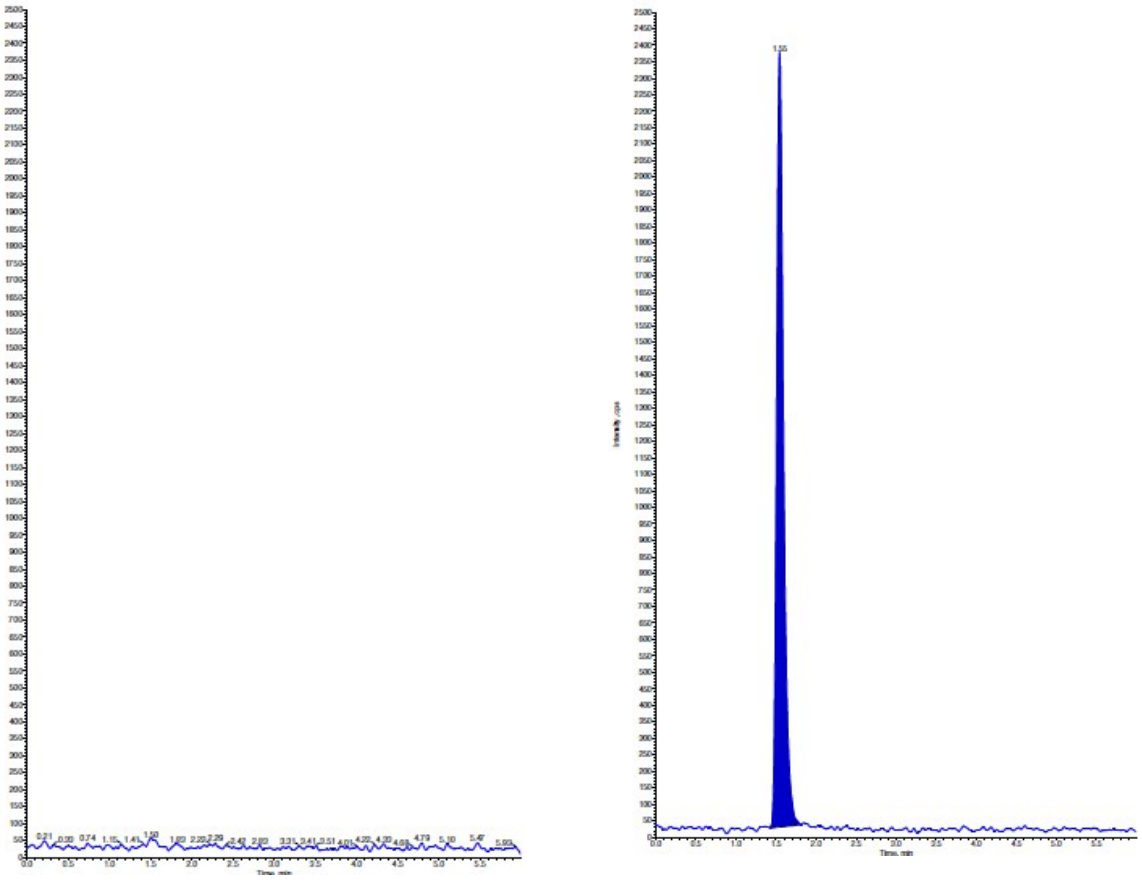

Figure S1(d).(Left) Blank and (right) 2,4-D peak.

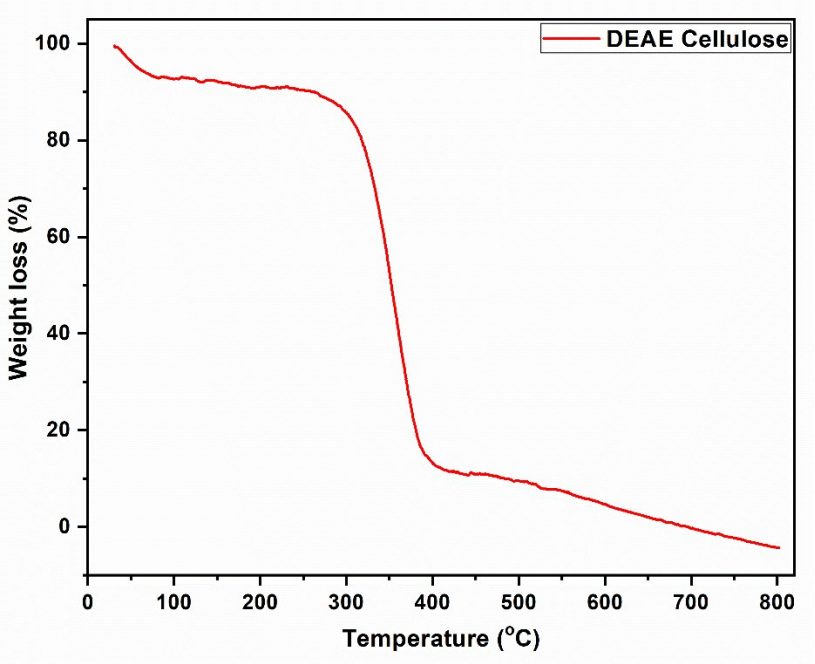

Figure S2. TGA analysis of adsorbent DEAE-Cellulose

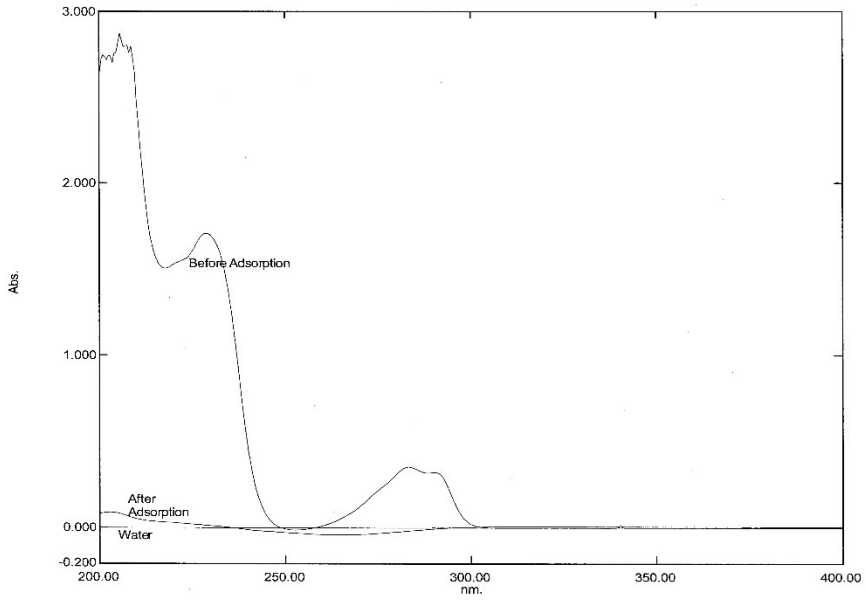

Figure S3.UV spectra of 2,4-D before and after desorption

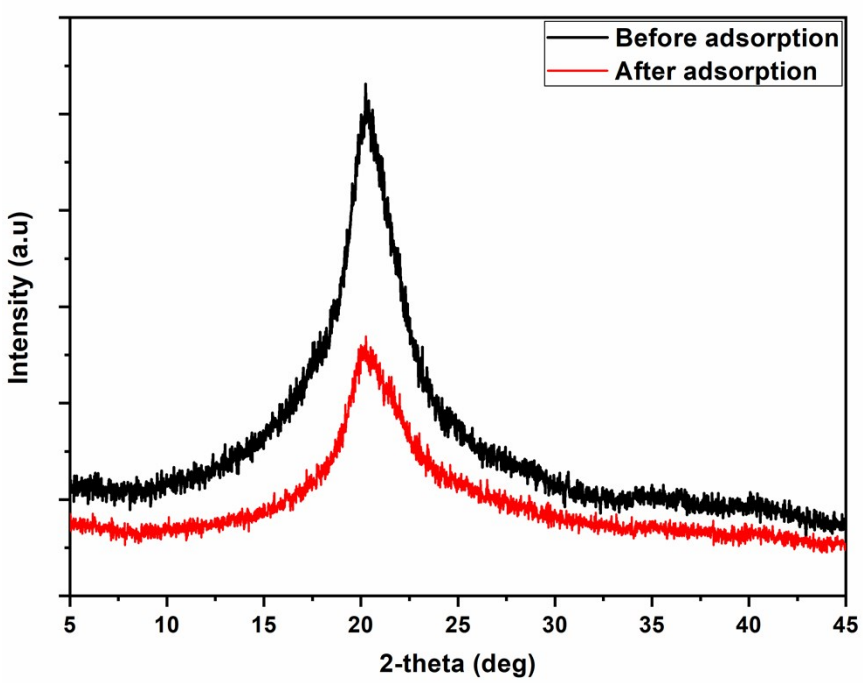

Figure S4. XRD patternof DEAD-Cellulose before and after adsorption of 2,4-D

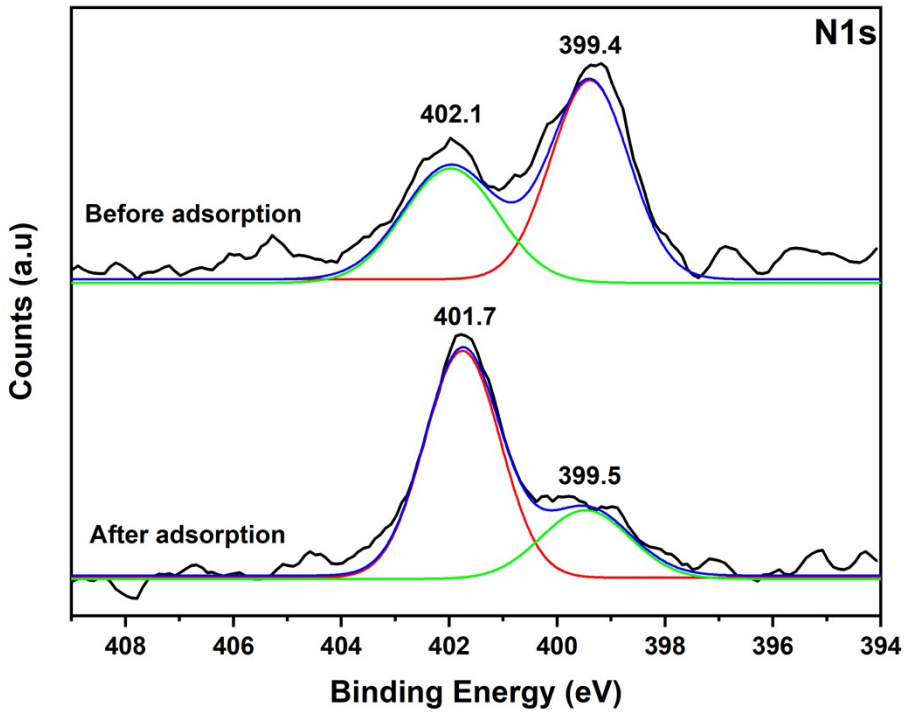

Figure S5. High resolution XPS spectra of N1s

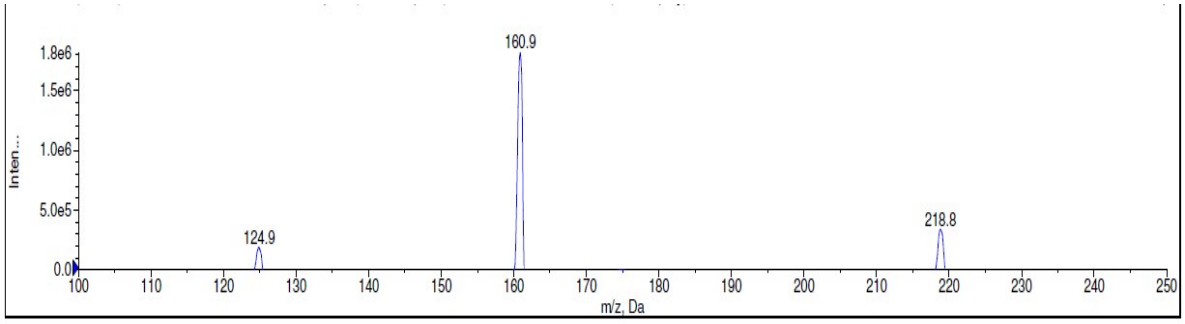

Figure S6. MS spectra of 2,4-D showing distinct precursor and product ions after desorption

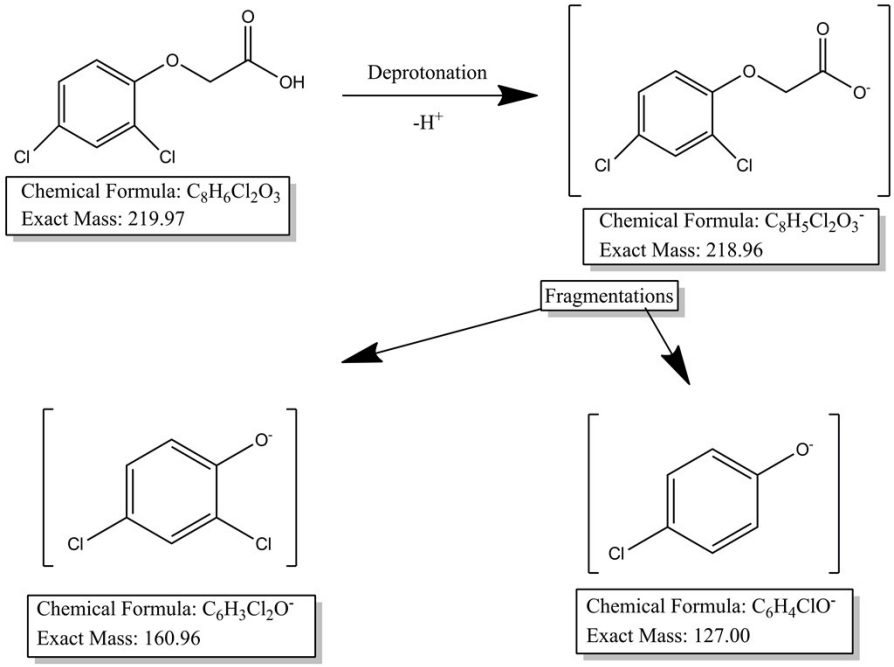

Figure S7.Fragmentation of 2,4-D and the individual product ions

Table S1: Regeneration studies of DEAE-Cellulose

Volume of water(L)	Weight of DEAE-Cellulose (g)	Cycle	2,4-D Spiking concentration, mg L^{-1}	Equilibrium Conc. mg L^{-1}	Adsorbed Conc. mg L^{-1}	% Adsorption
0.05	0.1	1st cycle	1	0.0139±0.002	0.986±0.002	98.6±0.2
0.05	0.1	2nd cycle	1	0.0266±0.003	0.973±0.003	97.3±0.3
0.05	0.1	3rd cycle	1	0.0406±0.003	0.959±0.003	95.9±0.3

Table S2: Effect of adsorption of 2,4-D in the presence of other pesticides.

Volume of water (L)	Weight of DEAE-Cellulose (g)	Added pesticides spiking concentration	2,4-D Spiking concentration, mg L^{-1}	Equilibrium conc, mg L^{-1}	Adsorbed conc. mg L^{-1}	% Adsorption
			C_o	C_e	C_o-C_e	
0.1	0.2	1 mg L^{-1} each	0.1	0.001±0.0001	0.099±0.0001	99.1±0.1
0.1	0.2	1 mg L^{-1} each	1.0	0.020±0.0004	0.980±0.0004	98.0±0.04
0.1	0.2	1 mg L^{-1} each	10	0.184±0.0079	9.817±0.0079	98.2±0.08

Table S3: Adsorption study of 2,4-D by DEAE-Cellulose from farm run-off water

Volume of run-off water (L)	Weight of DEAE-Cellulose (g)	2,4-D Spiking concentration, mg L^{-1}	Equilibrium concentration, mg L^{-1}	Adsorbed conc. mg L^{-1}	% Adsorption
		C_o	C_e	C_o-C_e	
0.1	0.2	0.1	0.0132±0.0012	0.0854±0.0012	86.8±1.2
0.1	0.2	1	0.1222±0.0034	0.8778±0.0034	87.8±0.3
0.1	0.2	10	1.1597±0.0125	8.8403±0.0125	88.4±0.1