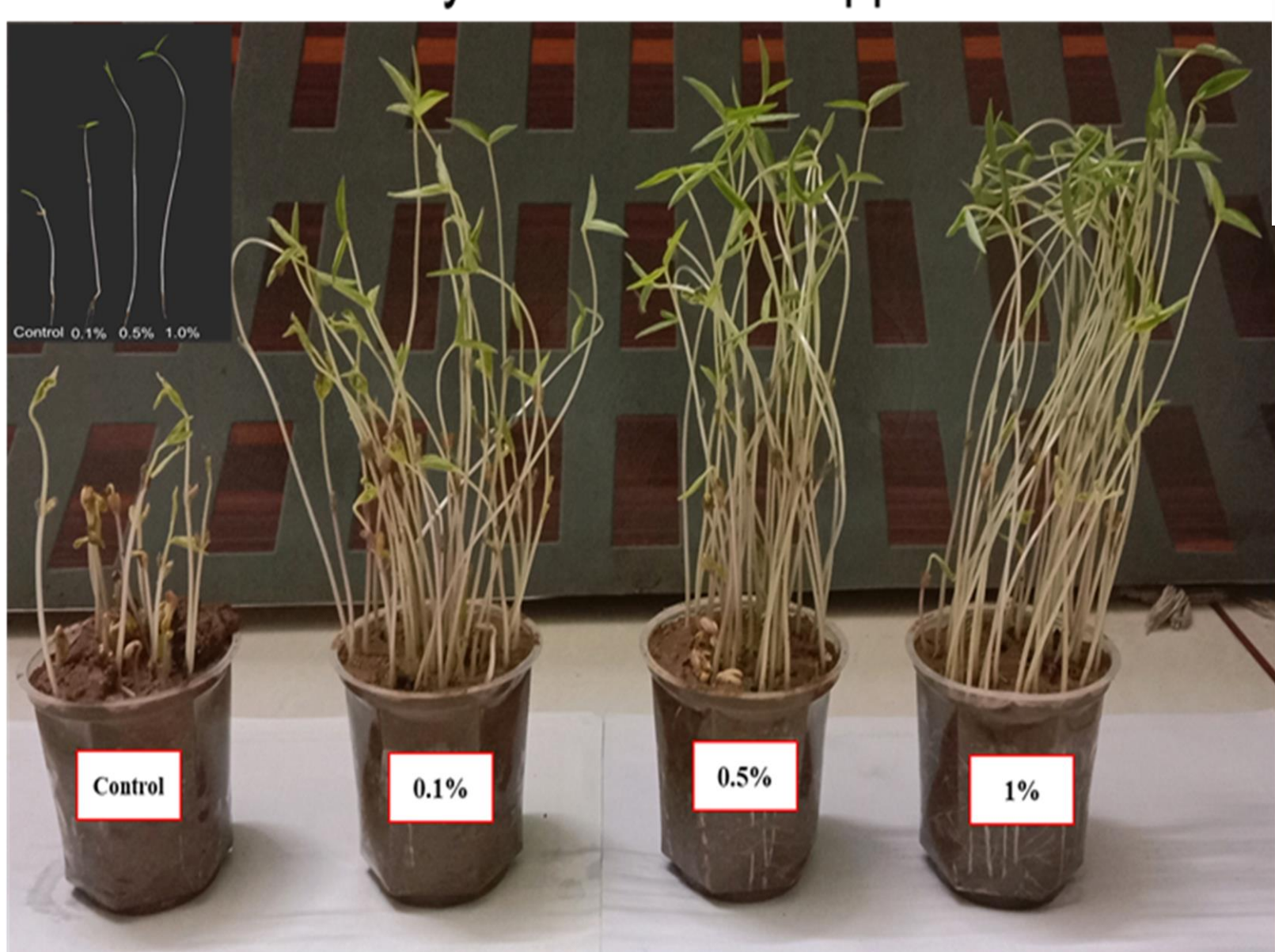
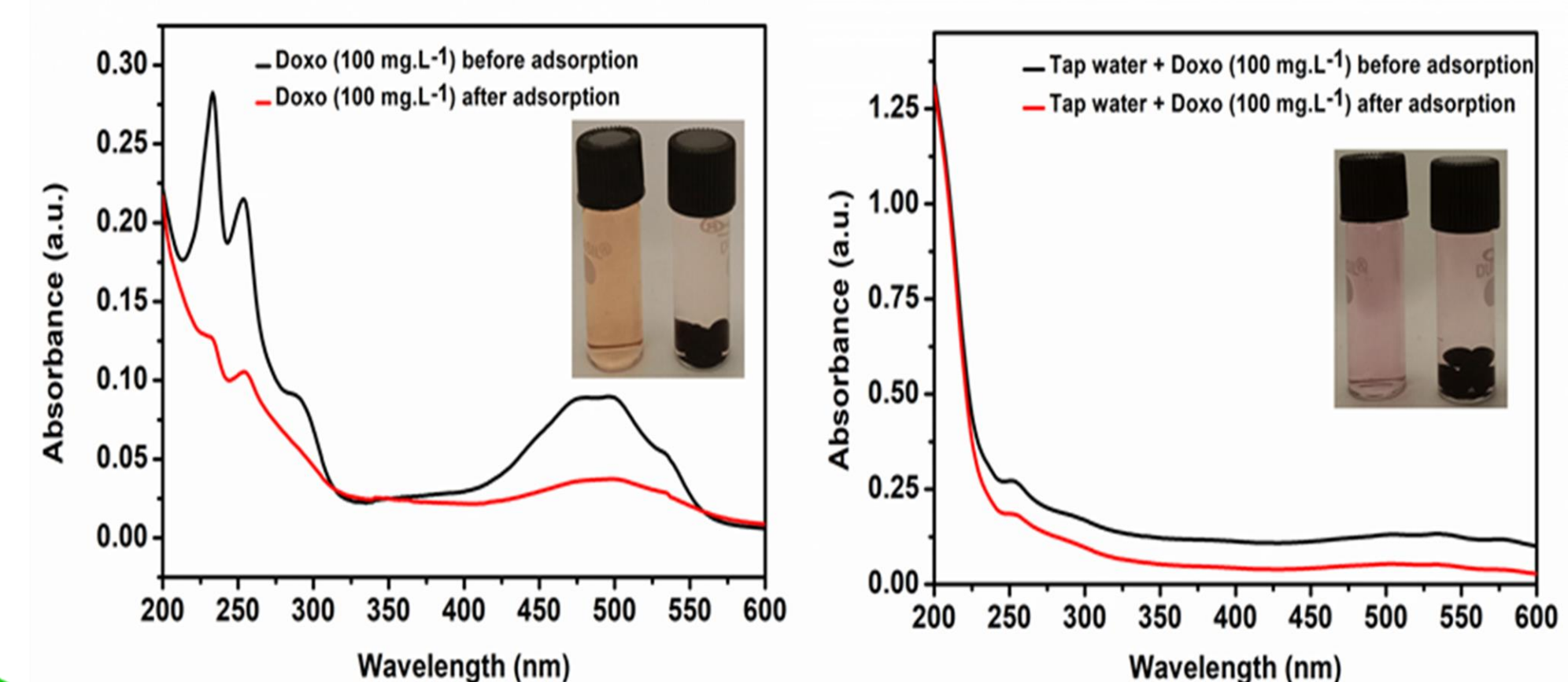


Pooja Devre, Dr. Anil Gore, Tarsadia Institute of Chemical Science, Uka Tarsadia University, Gujarat, 394350, India

Circular Economy & Zero Waste Approach



Disposal of Spent MSAC@GE-SA as a Fertilizer for Plant Growth

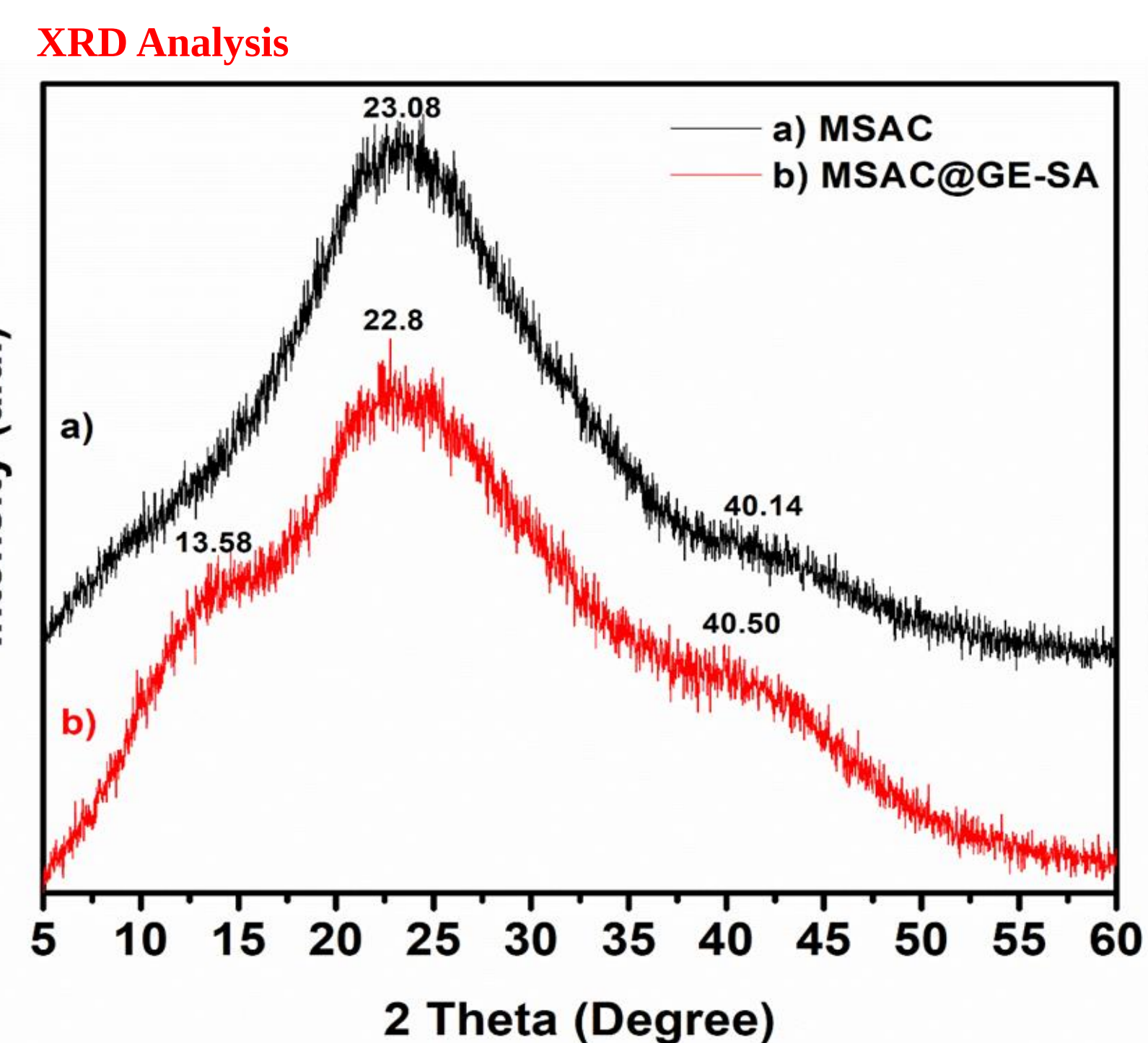
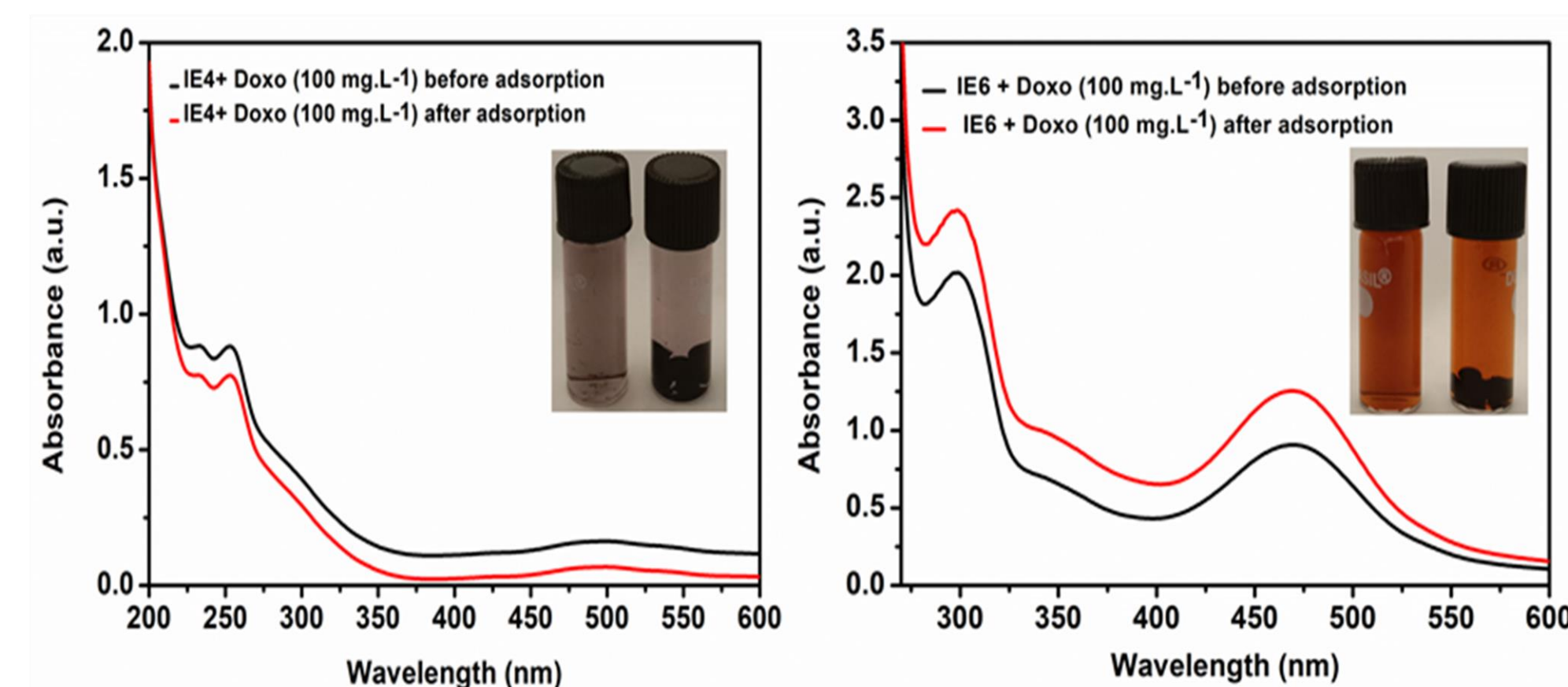


Figure: XRD of MSAC (a), and MSAC@-GE-SA (b).

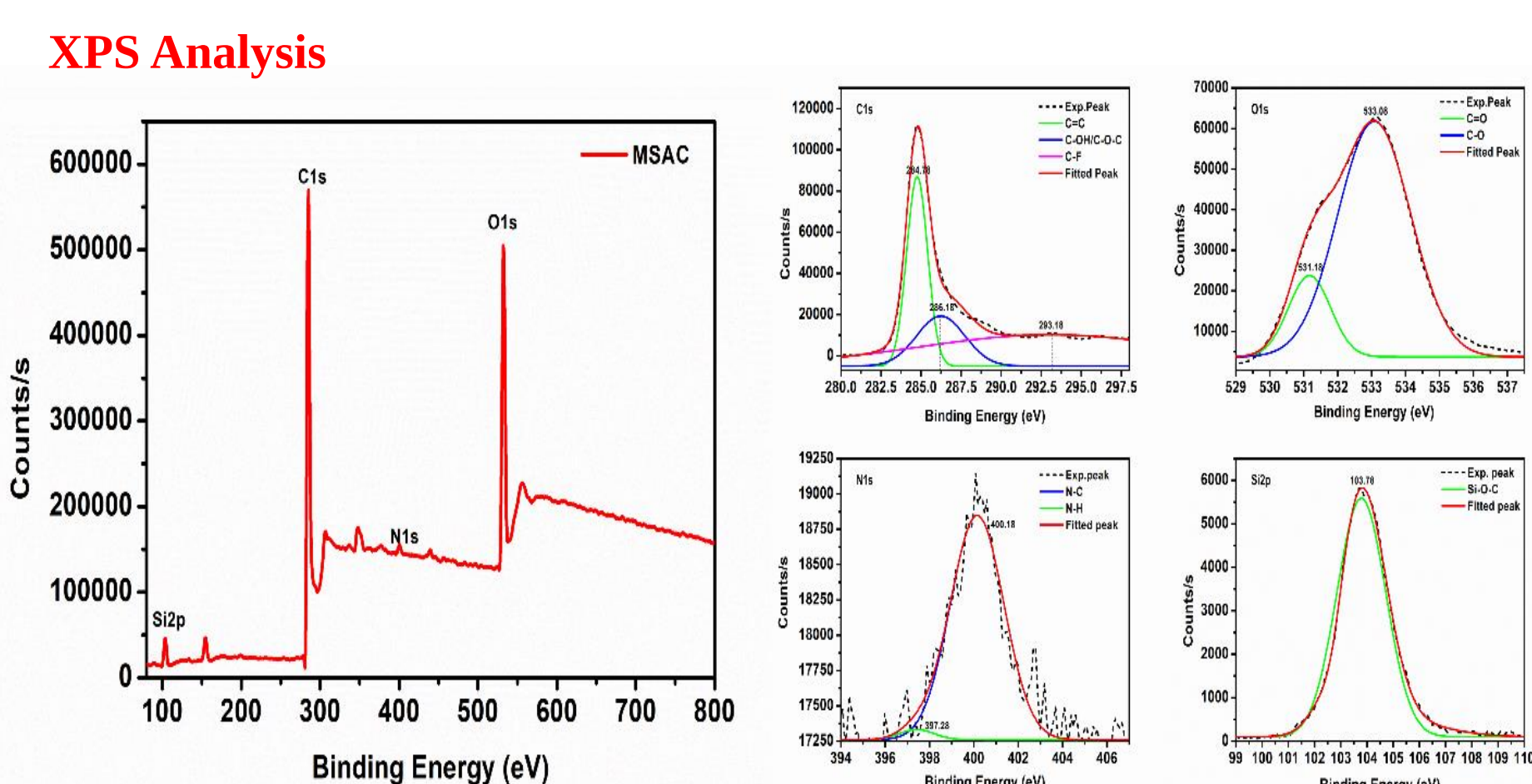


Figure: XPS survey spectra and deconvolution of C1s, O1s, N1s, Si2p for MSAC.

Sample Name	BET Surface area (m ² g ⁻¹)	Pore volume (cc/g)	Pore size (nm)	BJH Adsorption average pore diameter (nm)
MSAC	44.503	0.018	4.28	0.007
GE-SA	2.07	0.0005	2000	102.41
MSAC@GE-SA	4.10	0.0217	46.08	21.17

Table: Atomic percentage of elements

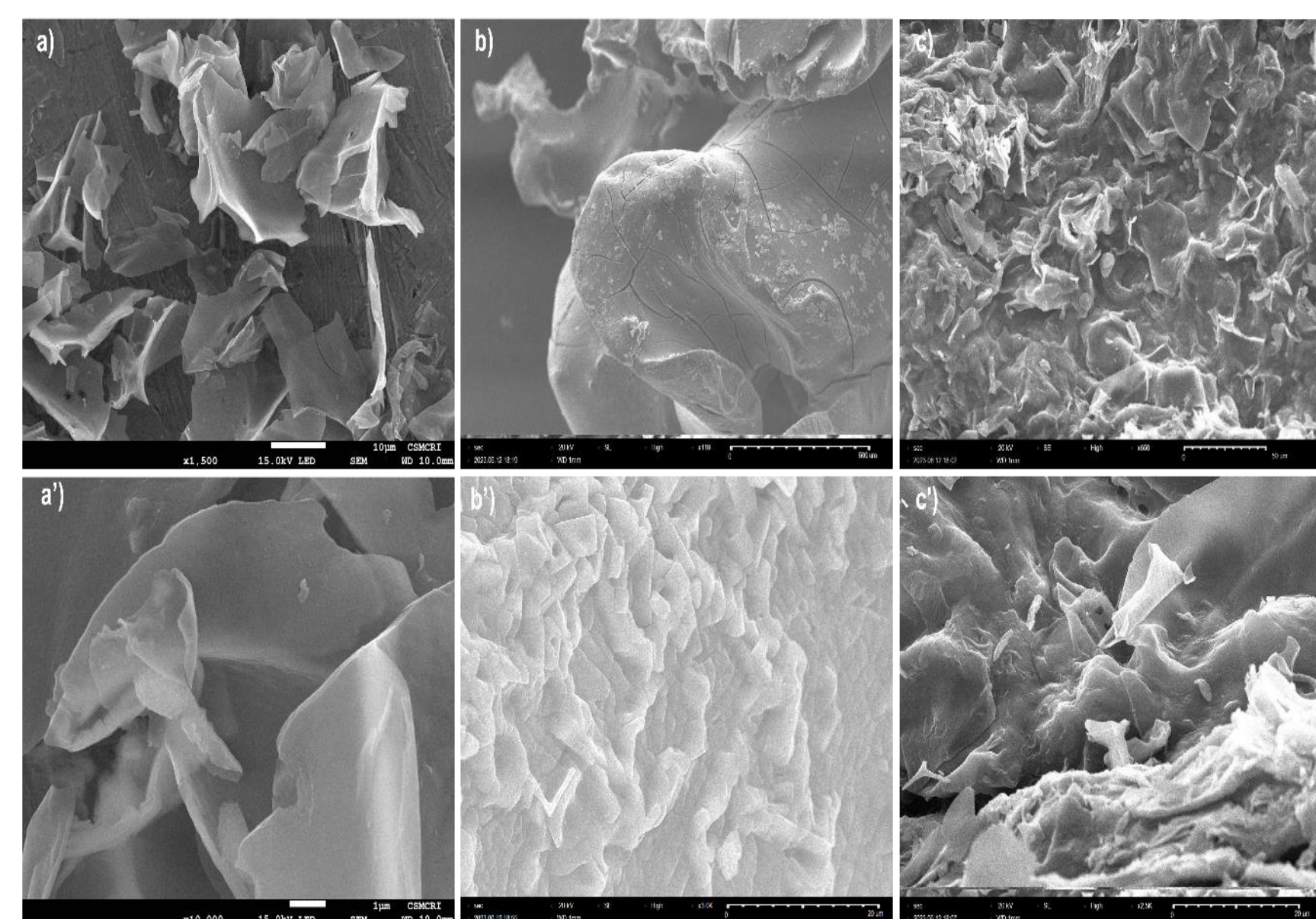


Figure: SEM images of MSAC (a, a'), GE-SA (b, b') and MSAC@GE-SA (c, c').

Applications of ACSGC@SA for real water and wastewater samples

Sr No.	Name of Samples (IE = Industrial Effluent)	Absorbance Before Adsorption	Absorbance After Adsorption	Removal (%)
1	Tapi River Water	0.0831	0.0560	67.38
2	Sewage Water	0.2303	0.1909	82.89
3	Tap Water	0.0867	0.0602	69.43
4	Canal Water	0.0804	0.0642	79.85
5	IE – 1	0.1543	0.1469	35.52
6	IE – 2	0.2811	0.1465	52.1
7	IE – 3	0.2089	0.0878	42.02
8	IE - 4	1.0268	0.8251	80.35
9	IE - 5	2.3121	1.718	74.30
10	IE - 6	1.9825	1.042	52.58

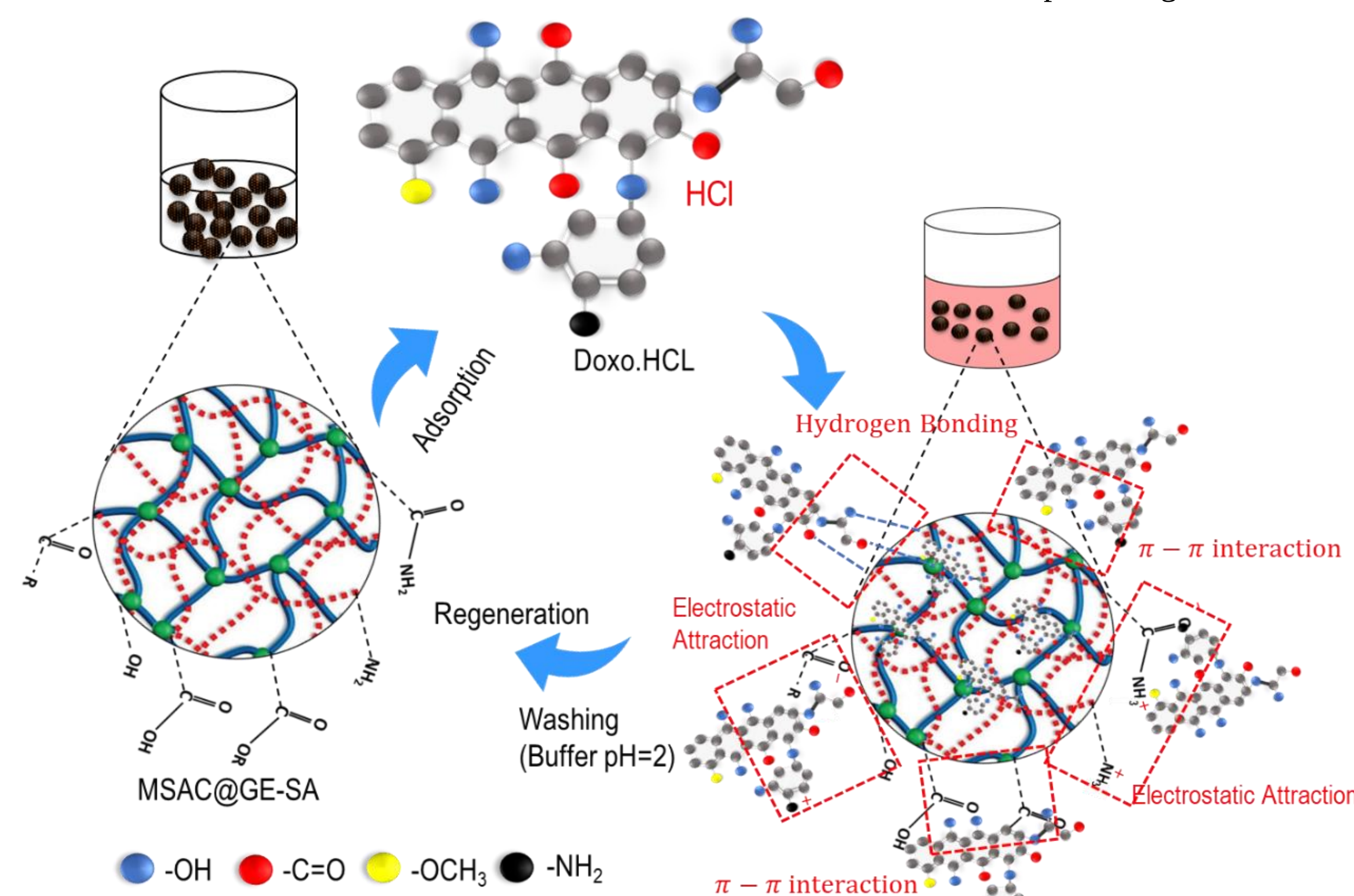


Figure: Schematic represented of adsorption desorption mechanism.