

## Supporting Information

### Mitigation of salt effect using graphene oxide as additives in plantation

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### Experimental procedure:

**Adsorption of NaCl using GO and cellulose:** We have investigated the adsorption capabilities of graphene oxide (GO) and cellulose for sodium chloride (NaCl). We prepared a 100 mM NaCl solution and measured its concentration before and after the adsorption process. For each experiment, 10 mL of the NaCl solution was mixed with 10 mL of either GO or cellulose suspension. The mixtures were stirred for 24 hours and then filtered. GO was used at three different concentrations (1, 10, and 100 mg/L), while cellulose was used at a concentration of 10 mg/L. To provide a basis for comparison, similar experiments were conducted with graphite under the same conditions. After filtration, the NaCl concentration in the solution was measured again to determine the amount adsorbed by the materials. Additionally, the filtered GO and cellulose samples were analyzed using X-ray photoelectron spectroscopy (XPS) to verify the presence of NaCl within the materials.

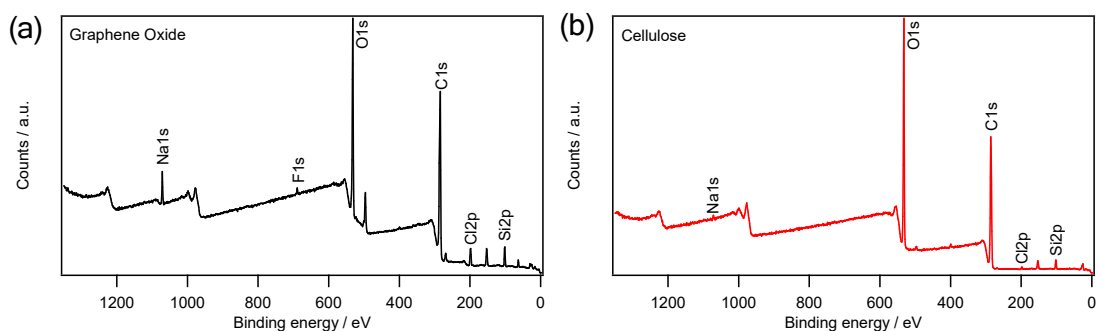


Figure S1: XPS survey spectra conducted after adsorption of NaCl using a) GO and b) cellulose

Table S1: Adsorption of NaCl using GO, graphite, and cellulose

Sample name	NaCl concentration			Percentage adsorption (%)
	Initial concentration (mg/L)	final concentration (mg/L)	adsorb (mg/L)	
GO 1 mg/L	2200	1960	240	10.91
GO 10 mg/L	2200	1960	240	10.91
GO 100 mg/L	2200	2020	180	8.18
Graphite 10 mg/L	2200	2120	80	3.64
Cellulose 10 mg/L	2200	1920	280	12.73

Table S2: Percentage of elements obtained from XPS analysis conducted after adsorption of NaCl using GO and cellulose

Sample	Element					
	C	O	Na	Cl	Si	F
Graphene Oxide	69%	23.3%	1.2%	1.5%	4.8%	0.2%
Cellulose	62.2%	34.2%	0.3%	0.1%	3.2%	