

SUPPLEMENTARY INFORMATION

Title: Green chemistry routed sugar press mud for zinc oxide 2D nano-sheet fabrication and climate-resilient wheat crop productivity

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Fig. S1 Soil concentrations of Zn after 90 days of experiments

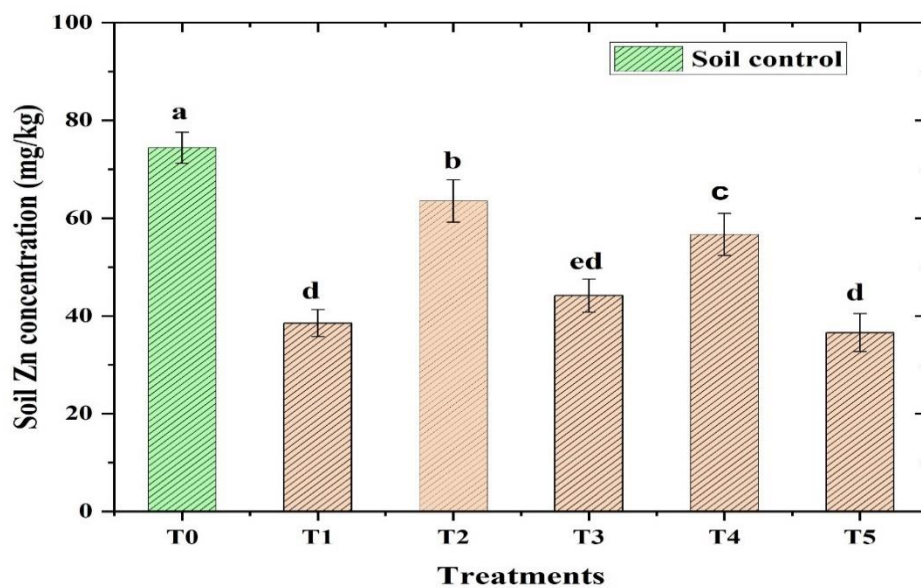


Table S2 Synthesis of ZnO NPs at pH 12.0 and temperature 35.0° C.

Precursor salts	Ligand	Morphology (shape)	Size (nm)	Zeta potential (mv)	Polydispersity Index (PDI)	Yield (w%)
Zinc Sulphate	PM	sheet-like	17 nm	+7.61	0.325	98.6
Zinc Sulphate	----	sphere-like	19 nm	-2.27	0.533	97.9

Table S3 Experimental design

Sr. No.	Symbol	Treatment details
1	T0	Control, (3kg sandy loam soil)
2	T1	Soil and Nano zinc oxide (ZnO) 75mg/kg
3	T2	Soil and ZnSO ₄ .7H ₂ O Agricultural grade 75mg/kg
4	T3	Soil, sugar press mud (1:4 w/w) and Nano ZnO 75mg/kg
5	T4	Soil and sugar press mud (1.4% w/w)

Table S4 Elemental composition of PM (ICP-MS) analysis

Elements	K	Mg	P	Fe	Cu	Zn
Concentration (ug/g)	58624.126	7109.542	7714.958	4330.3	3.24	2.21
RSD	213.71	114.32	98.56	109.87	2.78	1.21