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Electronic Supplementary Information

Photocatalytic degradation of imidacloprid in soil: Application of response surface methodology for optimization of parameters

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Table 1: Physicochemical characterization of studied soil

S. No.	Parameters	Values
1	pH	7.5
2	Total Organic Carbon (%)	0.3
3	Available Phosphorus (%)	.0023
4	Bulk Density (g/cm ³)	2
5	Permeability (cm/sec)	1.2×10^{-3}
6	Moisture Content (%)	1.23
7	Water Holding Capacity	20
8	Texture	Sandy loam

Table 2: Factors and Levels used in 30 factorial design study

** • • •	C I I	-2 (-à)	-1	0	+1	+2 (+à)	
Variables	Symbol	Coded level					
pH value	А	3	5	7	9	11	
Intensity of light(Wm ⁻²)	В	10	15	20	25	30	
Depth of soil (g)	С	5	10	15	20	25	
Imidacloprid conc.(mgL ⁻¹)	D	10	30	50	70	90	

Fig.1 Schematic representation for photocatalytic degradation of imidacloprid on soil surfaces.



Fig.2 The internally studentized residual plots





Fig.3 Contour plots for the interaction between pH and initial imidacloprid concentration at fixed depth of soil (0. 2cm) and light intensity 30 Wm⁻².









Fig.6 Resonatic structure of NO₂





Fig.7 LC Chromatogram of soil spiked with imidacloprid during (a) photolysis and (b) photocatalytic degradation after 18 h of UV irradiation.



Fig.8 The mass spectra of photocatalytic degradation metabolites of imidacloprid (A) and anticipated structure (B,C,D,E)





