

Photocatalytic Degradation of a Systemic Herbicide: Picloram from Aqueous Solution Using Titanium Oxide (TiO₂) under Sunlight

Md. Rakibul Islam ¹, Jahida Binte Islam ^{1,*}, Mai Furukawa ¹, Ikki Tateishi ², Hideyuki Katsumata ¹ and Satoshi Kaneco ^{1,2,*}

¹ Department of Chemistry for Materials, Graduate School of Engineering, Mie University; Tsu, 514-8507, Japan rakibulislamlikhon@gmail.com (M.R.I); maif@chem.mie-u.ac.jp (M.F.); hidek@chem.mie-u.ac.jp (H.K.)

² Global Environment Center for Education & Research, Mie University; Tsu, 514-8507, Japan tateishi@gecer.mie-u.ac.jp

* Correspondence: jbislam07@gmail.com (J.B.I.); kaneco@chem.mie-u.ac.jp (S.K.); Tel.: +81-59-231-9427

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Table S1. Analytical conditions for ion chromatography to determine NH₄⁺ ion.

Analyte	: NH ₄ ⁺
Column	: IC YK-421
Eluent	: 5 mM C ₂ H ₂ (OH) ₂ (COOH) ₂ + 1mM C ₅ H ₃ N(COOH) ₂ (1.5 g/L H ₃ BO ₃)
Flow rate	: 1 mL/min
Column temperature	: 40 °C
Injected volume	: 20 µL

Table S2. Analytical conditions for ion chromatography to determine Cl⁻ and NO₃⁻ ion.

Analyte	: Cl ⁻ , NO ₃ ⁻
Column	: 2710-SK-IC
Eluent	: 1 mM C ₆ H ₄ (COOH)(COOK)
Flow rate	: 0.7 mL/min
Column temperature	: 40 °C
Injected volume	: 20 µL

Table S3. Analytical conditions to determine the formation of formic acid.

Analyte	: HCOOH
Column	: KC-811
Eluent	: 0.1 % H ₃ PO ₄
Flow rate	: 0.8 mL/min
Wave length of detector	: 220 nm
Injected volume	: 20 µL

Table S4. UV-vis spectral changes data of picloram before and after UV irradiation.

Absorbance	Before irradiation	After 10 min irradiation without TiO ₂	After 10 min irradiation with TiO ₂
300	0.038	0.038	0.025
290	0.088	0.088	0.057
280	0.132	0.132	0.088
270	0.189	0.189	0.139
260	0.347	0.347	0.227
250	0.536	0.536	0.334
240	0.656	0.656	0.423
230	0.864	0.864	0.732
225	1.239	1.239	0.89
222	1.64	1.64	0.927
220	1.634	1.634	0.915
210	1.186	1.186	0.795
200	0.902	0.902	0.644

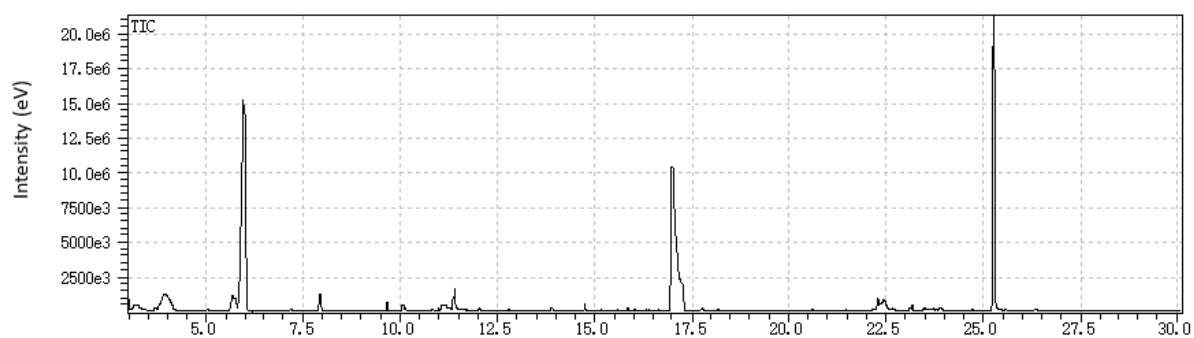


Figure S1. a). GC-MS-EI total ion chromatogram obtained for a SPE extraction of picloram solution.

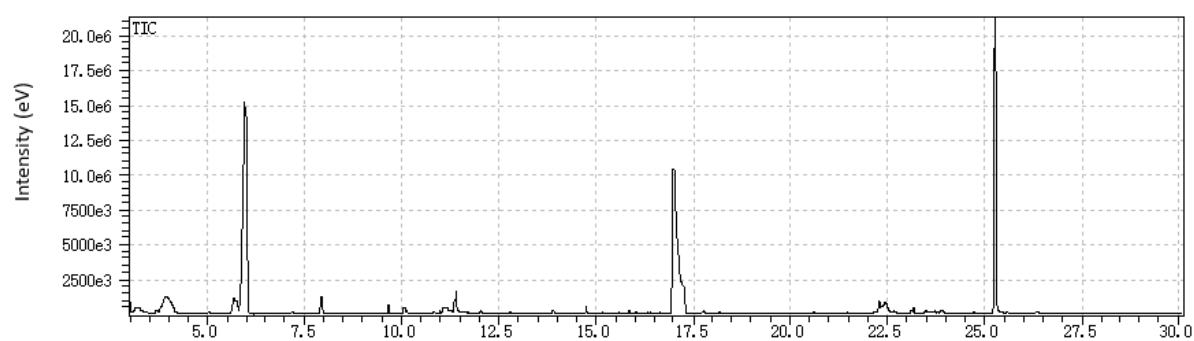


Figure 1. b). GC-MS-EI total ion chromatogram obtained for a SPE extraction of picloram solution after 10 min irradiation.

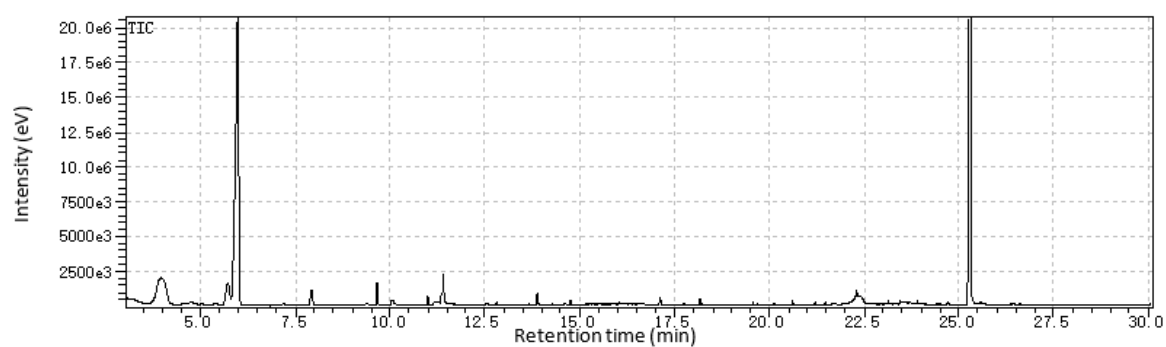


Figure S1. c). GC-MS-EI total ion chromatogram obtained for a SPE extraction of picloram solution after 30 min of irradiation.