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A chromogenic agent for detecting dimethylurea herbicides on thin-layer chromatographic plates

The methods for the detection of dimethylurea herbicides on thin-layer chromatographic plates are numerous¹⁻⁴. In addition to these existing methods we found that spraying the chromatogram with aqueous potassium permanganate and then exposing the plate to UV irradiation is a general and reproducible method for the detection of dimethylurea herbicides. Test herbicides were spotted on 250- μ Silica Gel G plates and were developed with benzene-acetone (2:1) or benzene-methyl ethyl ketone (2:1). The herbicides were detected by spraying the plates with saturated aqueous potassium permanganate and exposing the sprayed plates to a mercury vapor arc lamp (Hanovia No. 30620).

TABLE I

TLC OF HERBICIDES ON SILICA GEL G PLATES

Herbicides	Amounts detected (μ g)	<i>R_F</i> values	
		Benzene-acetone	Benzene-methyl ethyl ketone
Fenuron	1-2	0.52	0.29
Monuron	1-2	0.58	0.30
Fluormeturon	1-2	0.52	0.33
Diuron	2-4	0.67	0.36
Chloroxuron ^a	1	0.49	0.26
<i>p</i> -Bromofenuron	1-2	0.53	0.29

^a This spot is detectable without UV irradiation.

Table I gives the amounts in which the herbicides were detectable as a yellow spot on a purple background.

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1 S. E. KATZ, *J. Assoc. Offic. Anal. Chemists*, 49 (1966) 452.

2 J. FINOCCHIARO AND W. R. BENSON, *J. Assoc. Offic. Anal. Chemists*, 50 (1967) 888.

3 T. SOLO AND K. SALMINEN, *Z. Lebensm. Untersuch.-Forsch.*, 129 (1966) 149.

4 S. E. KATZ AND M. T. NIEH, *Bull. Environ. Contam. Toxicol.*, 2 (1967) 75.

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