application note

MCPA Herbicide

Abstract

For quality control of commercial formulations containing MCPA, a simple but effective method for analysis of the active principle is described. HPLC is ideal for this task, since MCPA preparations may be assayed rapidly under isocratic conditions with UV detection, as shown in Figure 1.

Keywords:
4-Chloro-2-methylphenoxyacetic acid, herbicide, MCPA, substituted phenoxy acids

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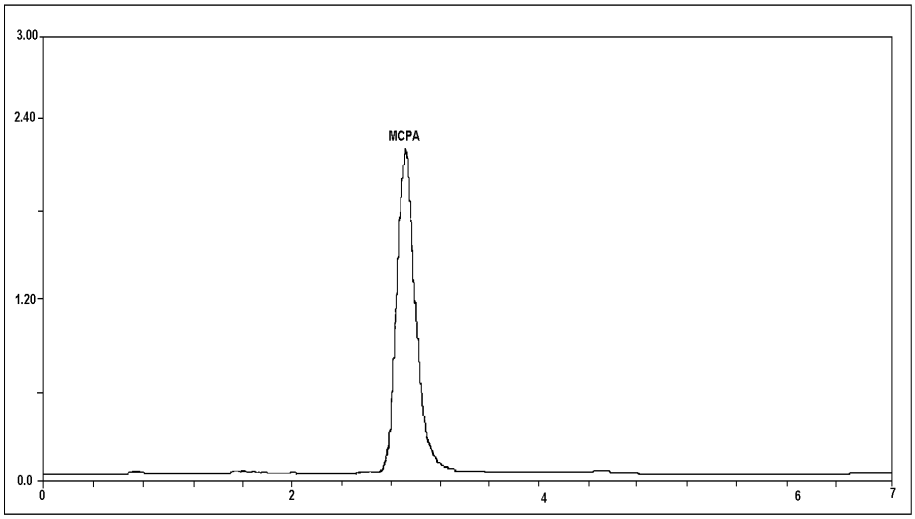

Figure 1 *Three minute separation of a standard solution of MCPA*

The herbicide 4-chloro-2-methylphenoxyacetic acid, commonly know as MCPA, is a fairly typical member of the substituted phenoxy acid group of synthetic plant growth hormones.

When applied to plant foliage, MCPA is absorbed and translocated throughout the whole plant. It acts by stopping cell division at the meristems and producing an abnormal structure in leaves, stems and roots by interfering with the normal processes of cell elongation. The vascular system of the plant is disrupted and it slowly dies.

Synthetic growth hormones like MCPA are rapidly degraded in both the soil and in the plant and are not considered to be highly toxic to mammals. The main problem in their use lies in the possibility that during spraying operations there may be some drifting onto other crops which may be susceptible to the action of such herbicides (Reference 1).

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GBC HPLC Instrumentation

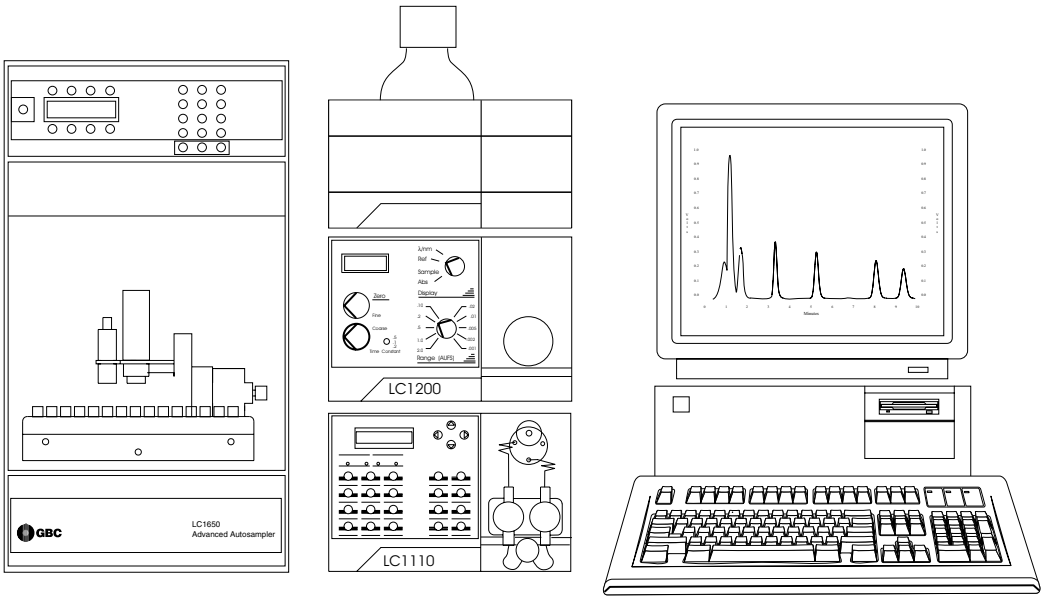
LC1110 Dual Piston HPLC Pump
LC1200 Variable Wavelength UV/Vis Detector
LC1445 System Organiser
LC1650 Advanced Autosampler
WinChrom Chromatography Data Management System

Conditions

Column:	Spherisorb S5 ODS2, 50 mm x 4.6 mm ID
Mobile Phase:	0.1% Aqueous phosphoric acid: methanol (40:60)
Flow Rate:	1 ml/min
Detection:	UV at 280 nm

References

1. 'The Pharmaceutical Codex' (11th Edition, 1979), pp. 668-9.



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