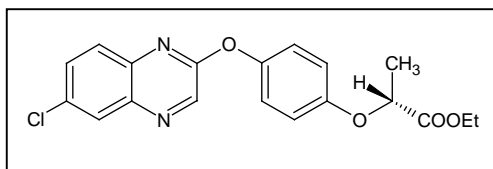


QUIZALOFOP-P-ETHYL 641

QUIZALOFOP-P-ETHYL

641



<i>ISO common name</i>	Quizalofop-P-ethyl
<i>Chemical name</i>	Ethyl (R)-2-[4-(6-Chloroquinoxalin-2-yloxy)phenoxy]propionate
<i>Empirical formula</i>	C ₁₉ H ₁₇ ClN ₂ O ₄
<i>RMM</i>	372.8
<i>m.p.</i>	76.1~77.1 °C
<i>v.p.</i>	1.10 × 10 ⁻⁴ mPa at 20 °C
<i>Solubility</i>	In water, 6.1×10 ⁻⁴ g/l at 20 °C, pH 5.0-7.0; Xylene, ethyl acetate and acetone > 250g/l, 1,2-dichloroethane > 1000g/l at 22-23 °C; methanol 34.87 g/l, n-heptane 7.168 g/l at 20 °C
<i>Description</i>	Off-white powder
<i>Stability</i>	Stable at neutral and acidity condition.
<i>Formulation</i>	Emulsifiable concentrate

QUIZALOFOP-P-ETHYL TECHNICAL
641/TC/M/-

1. Sampling. Take at least 100 g.

2. Identity tests

2.1 HPLC. Use the HPLC method below. The relative retention time of Quizalofop-P-ethyl in the sample solution should not deviate by more than 1.5% from that of calibration solution.

2.2 Infrared. Prepare potassium bromide discs for the Quizalofop-P-ethyl technical sample and reference substance. Scan the discs from 4000-400 cm^{-1} . The spectrum produced from the sample should not differ significantly from that of the standard.

3. Quizalofop-P-ethyl

OUTLINE OF METHOD

The sample is dissolved in mobile phase with n-heptane and isopropanol. Quizalofop-P-ethyl is separated and determined by normal phase HPLC on Chiralcel AD-H film stainless column with UV detector at 237 nm, quantified by external standard method.

REAGENTS

n-Heptane: HPLC grade

Isopropanol: HPLC grade

Quizalofop-P-ethyl reference standard of known purity: $w \geq 97.0\%$

Preparation of calibration solution in duplicate: Weigh approximately (to the nearest 0.1 mg) 50 mg Quizalofop-P-ethyl standard into 50 ml volumetric flask. Dissolve to the mark with mobile phase and mix thoroughly (Solution C_A and C_B).

APPARATUS

High-performance liquid chromatography equipped with UV detector

Column stainless steel: 250mm X 4.6 mm (id), Chiralcel AD-H, 5 μm , or equivalent

Chromatographic work station

Filter pore diameter: 0.45 μm

Automatic sampler: 100 μl

Ultrasonic bath

PROCEDURES

(a) Liquid Chromatographic Conditions (typical)

Mobile phase: n-heptane + isopropanol = 90 + 10 (v/v)

Flow rate: 0.6 ml/min

Detector wavelength: 237 nm

Injection volume: 1.5 μl

Column temperature: 25 °C

Retention time: approximately 15.4 min.

(b) Equilibration of the chromatographic system. Inject the calibration solution and repeat the injections until retention times and the response factors calculated from the peak areas vary by less than 1% for successive injections.

(c) Preparation of sample solution: Weigh (to the nearest 0.1 mg) sufficient sample to contain about 50 mg Quizalofop-P-ethyl into 50 ml volumetric flask. Dissolve to the mark with mobile phase and mix thoroughly. Filter through 0.45 µm filter membrane if necessary. Prepare in duplicate (S₁ and S₂)

(d) Determination: Inject in duplicate 1.5 µl portions of each sample solution bracketing them by injections of the calibration solution as follows: C_A, S₁, S₁, C_B, S₂, S₂, C_A and so on. Measure the relevant peak areas.

(e) Calculation

$$f_i = \frac{s \times P}{H_s}$$

$$\text{Content of Quizalofop-P-ethyl} = \frac{H_w \times f}{w} \text{ g/kg}$$

where:

f_i = individual response factor

f = mean response factor

H_s = peak areas of Quizalofop-P-ethyl in the calibration solution

H_w = peak areas of Quizalofop-P-ethyl in the sample solution

s = mass of Quizalofop-P-ethyl standard (mg)

w = mass of sample taken (mg)

P = purity of Quizalofop-P-ethyl standard (g/kg)

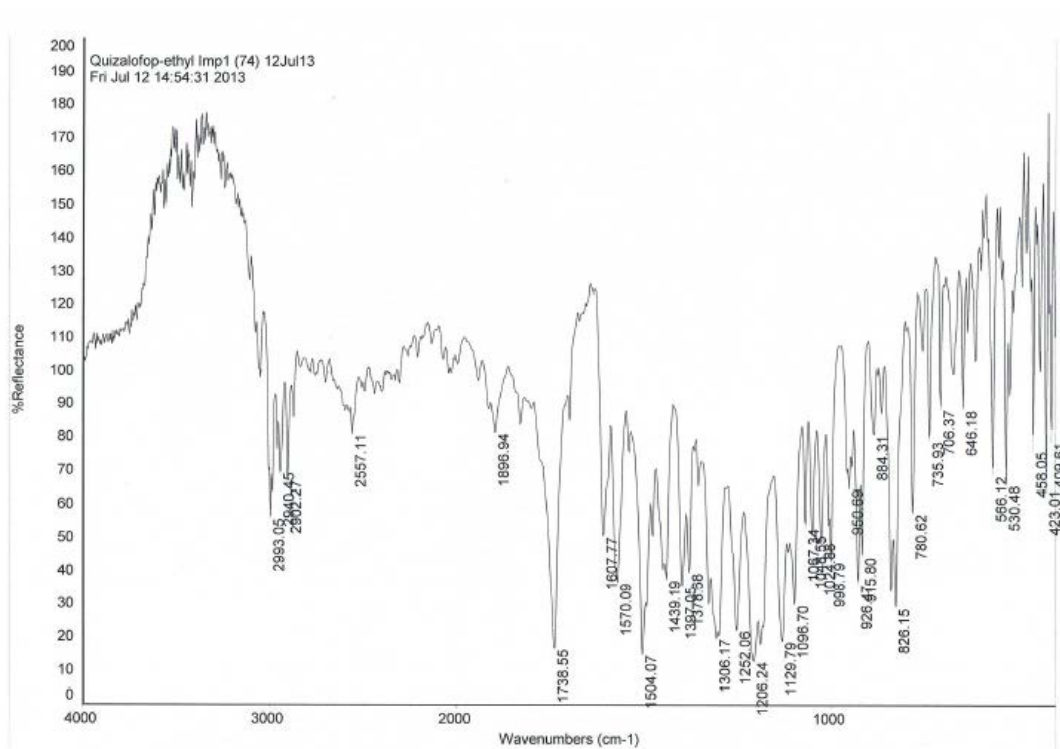


Fig. 1 Infrared spectra of Quizalofop-P-ethyl

QUIZALOFOP-P-ETHYL EMULSIFIABLE CONCENTRATE

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1. **Sampling.** Take at least 1 l.
2. **Identity tests.** As for Quizalofop-P-ethyl technical *****
3. **Quizalofop-P-ethyl.** As for Quizalofop-P-ethyl technical *****

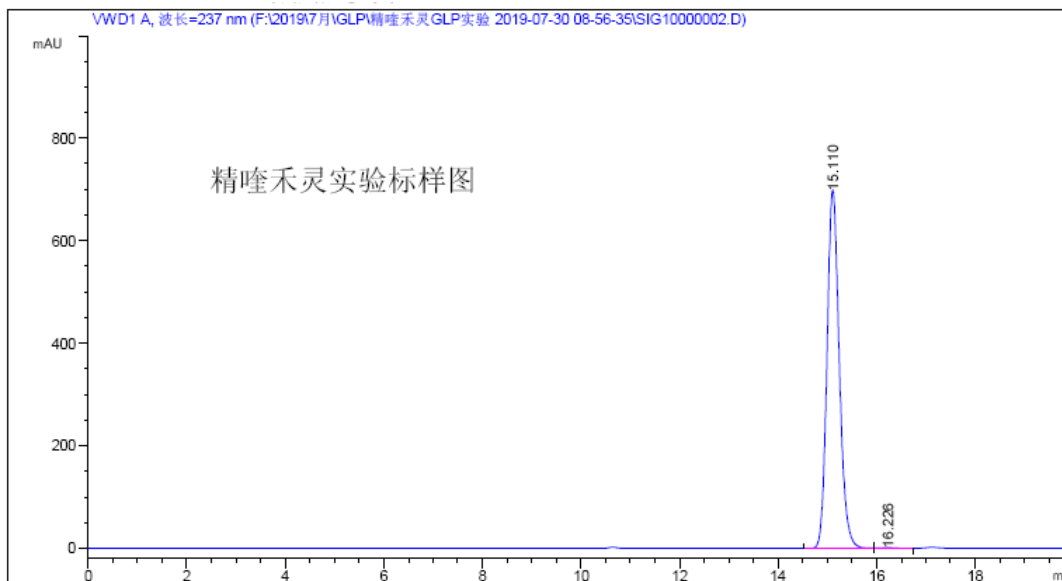


Fig. 2 Chromatogram of Quizalofop-P-ethyl standard

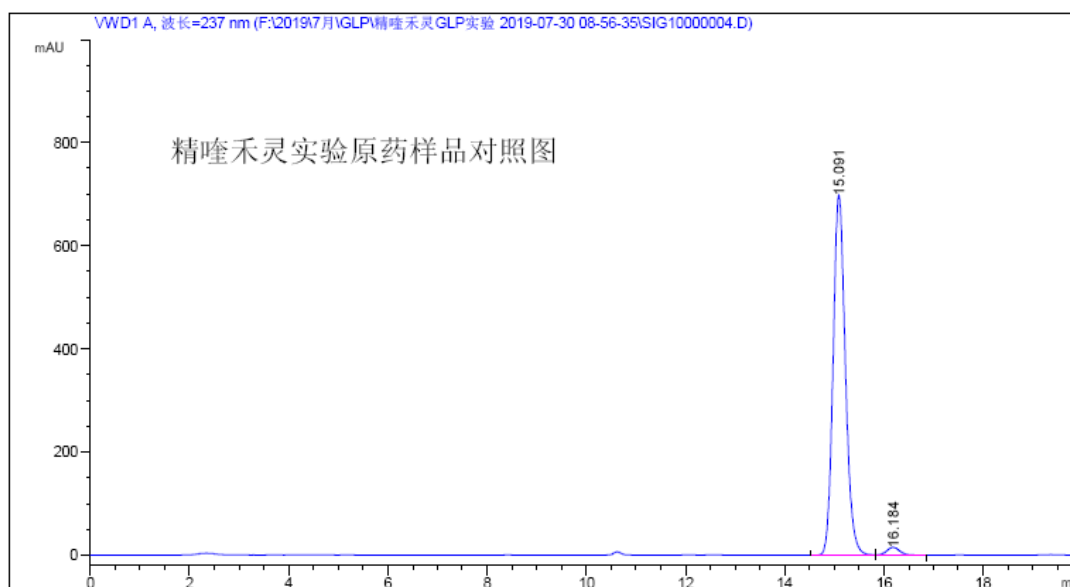


Fig. 3 Chromatogram of Quizalofop-P-ethyl TC sample

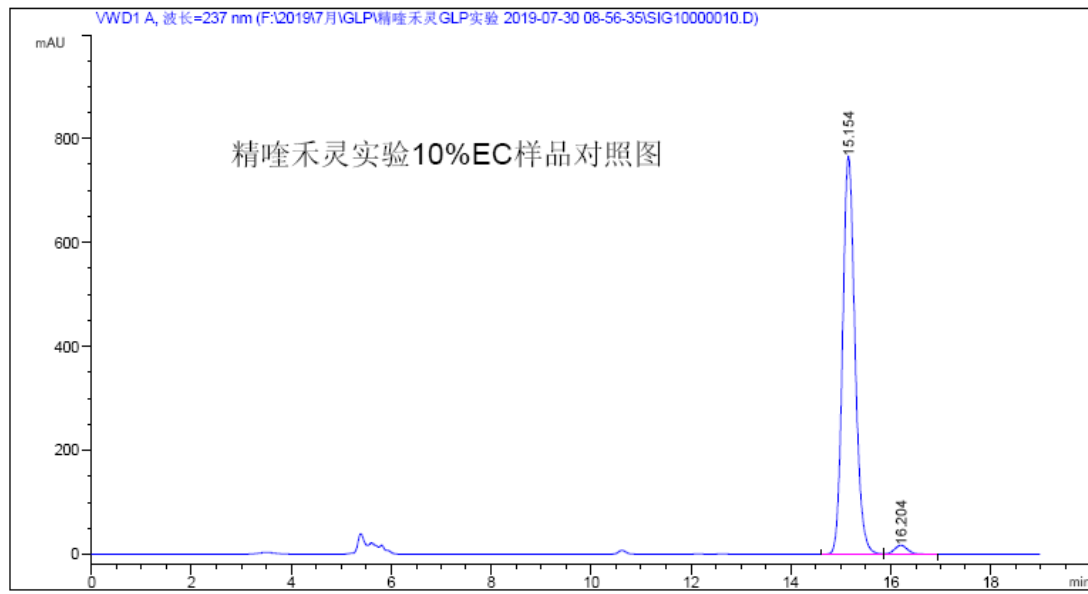


Fig. 4 Chromatogram of Quizalofop-P-ethyl 10% EC sample