

Product Data Sheet

Product Name: Eugenol-d3

Cat. No.: GC66444

Chemical Properties

Cas. No. 1335401-17-6

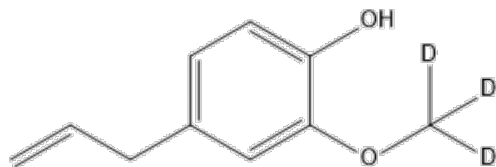
Formula $C_{10}H_9D_3O_2$ M.Wt 167.22

Solubility DMSO : 100 mg/mL (598.01 mM; Need ultrasonic) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Caution: Product has not been fully validated for medical applications. For research use only.

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This protocol uses Eugenol-d3 as an internal standard for the quantification of Eugenol in biological or chemical samples using GC-MS. Actual application conditions may require optimization depending on matrix complexity and instrument sensitivity [1-2].

1. Preparation of Reagents and Materials

Eugenol-d3 ($\geq 98\%$ isotopic purity), Eugenol standard, extraction solvent, sample matrix, GC-MS system.

2. Experimental Steps

(1) Internal Standard Preparation

Dissolve Eugenol-d3 in methanol to prepare a stock solution. Store at -20°C , protect from light.

(2) Sample Spiking and Extraction

Add a defined volume of Eugenol-d3 solution to each sample before extraction. Add extraction solvent, vortex, and centrifuge to collect supernatant.

(3) Instrument Analysis

Inject extract into GC-MS. Monitor specific mass transitions (m/z 164 $\rightarrow$ 134 for Eugenol, m/z 167 $\rightarrow$ 137 for Eugenol-d3). Calculate analyte concentration using a calibration curve constructed with fixed internal standard concentration.

Notes and Precautions

- (1) Ensure the concentration of Eugenol-d3 falls within the linear range of the method.
- (2) Internal standard must be added before extraction to correct for matrix effects and loss.
- (3) Keep consistent injection volume and sample preparation procedure to maintain data quality.

References:

- [1]. Zhao DH, Ke CL, Liu Q, et al. Elimination kinetics of eugenol in grass carp in a simulated transportation setting. BMC veterinary research. 2017 Dec; 13: 1-6.
- [2]. Liu H, Li J, Wang C. Development of a SID-SPE-GC-MS/MS isotope dilution assay for the quantification of eugenol in water samples. Aquaculture Research. 2018 Jan; 49(1): 582-585.

Background

Eugenol-d3 is a triply deuterated (d3) derivative of the common natural product eugenol [1]. Eugenol is an essential oil found in cloves that has antimicrobial, insect repellent and antioxidant activities [2-3].

References:

- [1]. Zhao DH, Ke CL, Liu Q, et al. Elimination kinetics of eugenol in grass carp in a simulated

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transportation setting. BMC veterinary research. 2017 Dec; 13: 1-6.

[2]. Marchese A, Barbieri R, Coppo E, et al. Antimicrobial activity of eugenol and essential oils containing eugenol: A mechanistic viewpoint. Critical reviews in microbiology. 2017 Nov 2; 43(6): 668-689.

[3]. Ulanowska M, Olas B. Biological properties and prospects for the application of eugenol—a review. International journal of molecular sciences. 2021 Apr 1; 22(7): 3671.

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