Isoimperatorin

Cat. No.: HY-N0286

CAS No.: 482-45-1

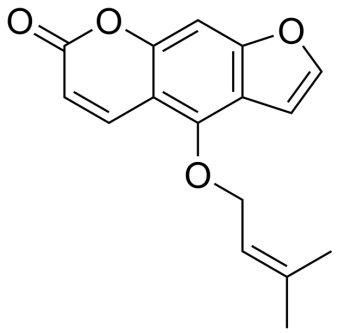
Molecular Formula: $C_{16}H_{14}O_4$

Molecular Weight: 270.28

Target: Cholinesterase (ChE); Bacterial

Pathway: Neuronal Signaling; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 8.33 mg/mL (30.82 mM; Need ultrasonic)
DMSO : 2.5 mg/mL (9.25 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.6999 mL	18.4993 mL	36.9987 mL
5 mM	0.7400 mL	3.6999 mL	7.3997 mL
10 mM	0.3700 mL	1.8499 mL	3.6999 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 0.5% CMC-Na/0.1% Tween-80 in Saline water
   Solubility: 6.25 mg/mL (23.12 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 50% PEG300 >> 50% PBS
   Solubility: 3.33 mg/mL (12.32 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.83 mg/mL (3.07 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 0.83 mg/mL (3.07 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Isoimperatorin is a methanolic extract of the roots of Angelica dahurica shows significant inhibitory effects on acetylcholinesterase (AChE) with the IC_{50} of 74.6 μM.

IC_{50} & Target

AChE

In Vitro

During a screening program for new agrochemicals from Chinese medicinal herbs, the ethanol extract of Notopterygium

incisum rhizomes is found to possess strong nematicidal activity against the two species of nematodes, Bursaphelenchus xylophilus and Meloidogyne incognita. Based on bioactivity-guided fractionation, the four constituents are isolated from the ethanol extract and identified as Columbianetin, Falcarindiol, Falcarinol, and Isoimperatorin. Isoimperatorin also has LC_{50} values of 21.83 μg/mL against B. xylophilus. When using 15 min UV light treatment, falcarindiol, falcarinol, and isoimperatorin demonstrated almost five times more toxic to the southern root-knot nematodes than in dark treatment while columbianetin showed only two times more toxic. isoimperatorin has been demonstrated to possess insecticidal activity against several insects, such as the cabbage aphid (Brevicoryne brassicae)[2]. Isoimperatorin is identified in the active fraction of Angelica dahurica (AD) extract[3]. Isoimperatorin is usually used as the internal standard (IS)[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Metabolites. 2023, 13(1), 3.
- Cardiovasc Drugs Ther. 2024 Feb 16.

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REFERENCES

[1]. Kim DK, et al. Acetylcholinesterase inhibitors from the roots of Angelica dahurica. Arch Pharm Res. 2002 Dec;25(6):856-9.

[2]. Liu G, et al. Identification of Nematicidal Constituents of Notopterygium incisum Rhizomes against Bursaphelenchus xylophilus and Meloidogyne incognita. Molecules. 2016 Sep 23;21(10). pii: E1276.

[3]. Park EY, et al. Angelica dahurica Extracts Improve Glucose Tolerance through the Activation of GPR119. PLoS One. 2016 Jul 8;11(7):e0158796.

[4]. Yu XA, et al. The pharmacokinetics, bioavailability and excretion of bergapten after oral and intravenous administration in rats using high performance liquid chromatography with fluorescence detection. Chem Cent J. 2016 Oct 14;10:62.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA