

Product Data Sheet

Product Name: Eucalyptol (1,8-Cineole)

Cat. No.: GC30910

Chemical Properties

Cas. No. 470-82-6

SMILES CC1(C)OC2(C)CCC1CC2

Formula $C_{10}H_{18}O$ M.Wt 154.25

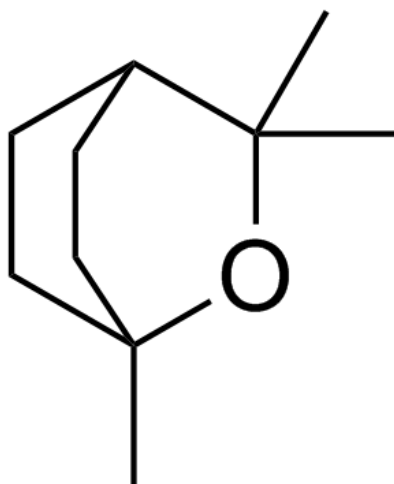
Solubility DMSO : ≥ 120 mg/mL (777.96 mM); Water : 33.33 mg/mL (216.08 mM; Need ultrasonic)

Storage Store at -20°C , protect from light

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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Cell experiment: The protective dose of Eucalyptol (Cineole) is determined by MTT dye-uptake method. In brief, cells (1×10^4 per well) are seeded in 96-well tissue culture plates and allowed to adhere for 24 h in CO₂ incubator at 37°C. Cells are differentiated for the indicated time period. Thereafter, the medium is replaced with the medium containing Eucalyptol (0 to 10 μ M) in different experiments for a period up to 24 h. Tetrazolium bromide salt (5 mg/mL of stock in PBS) 10 μ L/well is added in 100 mL of cell suspension and plate is incubated for 4 h. At the end of incubation period, the reaction mixture is carefully taken out and 200 μ L of DMSO is added to each well by pipetting up and down several times until the content gets homogenized. The plates are kept on rocker shaker for 10 min at room temperature and then read at 550 nm using microplate reader[3].

Animal experiment: Swiss mice are used in this experiment. The animals are randomly divided into two groups (n=5) and fasted overnight with free access to water. The group control receives a 1% Tween-80 aqueous solution (0.1 mL/10 g) and the other group is treated with Eucalyptol a single 2000 mg/kg dose by oral route. The animals are observed at 30, 60, 120, 180 and 240 min after oral treatment and daily for 14 days. Behavioral changes, weight, food and water consumption, clinical signs of toxicity or mortality are recorded daily[4].

References:

- [1]. Jarvis GE, et al. Noncompetitive Inhibition of 5-HT₃ Receptors by Citral, Linalool, and Eucalyptol Revealed by Nonlinear Mixed-Effects Modeling. J Pharmacol Exp Ther. 2016 Mar;356(3):549-62.
- [2]. Zeraatpisheh Z, et al. Eucalyptol induces hyperexcitability and epileptiform activity in snail neurons by inhibiting potassium channels. Eur J Pharmacol. 2015 Oct 5;764:70-8.
- [3]. Khan A, et al. 1,8-cineole (eucalyptol) mitigates inflammation in amyloid Beta toxicated PC12 cells: relevance to Alzheimer's disease. Neurochem Res. 2014 Feb;39(2):344-52.[3]
- [4]. Caldas GF, et al. Repeated-doses and reproductive toxicity studies of the monoterpene 1,8-cineole (eucalyptol) in Wistar rats. Food Chem Toxicol. 2016 Nov;97:297-306.

Background

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Eucalyptol is an inhibitor of 5-HT₃ receptor, potassium channel, TNF- α and IL-1 β .

Eucalyptol inhibits 5-HT-evoked currents in oocytes expressing 5-HT₃ receptors with an IC₅₀ of 258 μ M[1]. Eucalyptol (Cin) treatment significantly decreases the ROS level in A β 25-35 treated cells in a dose dependent manner. Eucalyptol treatment significantly decreases the NO level in A β 25-35 treated cells in a dose dependent manner ($p < 0.05$ and $p < 0.01$). Eucalyptol treatment also significantly decreases IL-1 β level in A β 25-35 treated cells in a dose dependent manner ($p < 0.05$ and $p < 0.01$) as compare to A β 25-35 treated PC12 cells. IL-6 level is also attenuated by Eucalyptol in dose dependent manner ($p < 0.05$ and $p < 0.01$) as compare to A β 25-35 treated cells[3].

Results show that male and female rats treated with Eucalyptol (CIN) at the highest doses, 500 and 1000 mg/kg, have shown lower body weight than control group from the 7th to 50th day of treatment. The administration of Eucalyptol significantly reduces body weight gain of male rats (Eucalyptol 500 and 1000 mg/kg) and female rats (Eucalyptol 1000 mg/kg) in the first week of treatment. However, this reduction is followed by an increase in body weight of rats males and females treated with all doses of the second week until the end of treatment. For male rats, there is a significant increase of 6.93% in mean corpuscular volume (MCV) (Eucalyptol 1000 mg/kg) and of 43.54 and 38.98% in the platelet count (Eucalyptol 500 and 1000 mg/kg, respectively) and a decrease of 6.74 and 6.67% in mean corpuscular hemoglobin concentration (MCHC) (Eucalyptol 500 and 1000 mg/kg) and mean platelet volume (MPV) of 10.40, 10.60 and 15.73% (Eucalyptol 100, 500 and 1000 mg/kg, respectively), when compare to the control group[4].

[1]. Jarvis GE, et al. Noncompetitive Inhibition of 5-HT₃ Receptors by Citral, Linalool, and Eucalyptol Revealed by Nonlinear Mixed-Effects Modeling. J Pharmacol Exp Ther. 2016 Mar;356(3):549-62. [2]. Zeraatpisheh Z, et al. Eucalyptol induces hyperexcitability and epileptiform activity in snail neurons by inhibiting potassium channels. Eur J Pharmacol. 2015 Oct 5;764:70-8. [3]. Khan A, et al. 1,8-cineole (eucalyptol) mitigates inflammation in amyloid Beta toxicated PC12 cells: relevance to Alzheimer's disease. Neurochem Res. 2014 Feb;39(2):344-52.[3] [4]. Caldas GF, et al. Repeated-doses and reproductive toxicity studies of the monoterpene 1,8-cineole (eucalyptol) in Wistar rats. Food Chem Toxicol. 2016 Nov;97:297-306.

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