Data Sheet (Cat.No.TN4183)

TargetMol
A DRUG SCREENING EXPERT

Hardwickiic acid

Chemical Properties

CAS No.:	1782-65-6
Formula:	C20H28O3
Molecular Weight:	316.4
Appearance:	N/A
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Hardwickiic acid modulates hippocampal [(3)H]NA overflow evoked by a mild depolarizing stimulus by acting at presynaptic opioid receptor subtypes. Hardwickiic acid shows antimicrobial activity, it can inhibit the growth of all the tested microbial species. (-)-Hardwickiic acid has insecticidal activity.
Targets(IC_{50})	Antifection: None HSP90: None
In vitro	Copaifera spp. are Amazonian species widely studied and whose oleoresins are used by local people for various medicinal purposes. However, a detailed study of the activity of the main phytochemical components of these oleoresins remains to be done. METHODS AND RESULTS: Here, we studied the cytotoxicity and in vitro anti-inflammatory effects of six diterpene acids: copalic, 3-hydroxy-copalic, 3-acetoxy-copalic, hardwickiic, kolavic-15-metyl ester, and kaurenoic, isolated from the oleoresins of Copaifera spp. The diterpenes did not show cytotoxicity in normal cell lines, nor did they show significant changes in viability of tumoral line cells. The 3-hydroxy-copalic was able to inhibit the enzyme tyrosinase (64% ± 1.5%) at 250 µM. The kolavic-15-metyl ester at 200 µM showed high inhibitory effect on lipoxygenase (89.5% ± 1.2%). Among the diterpenes tested, only kaurenoic and copalic acids showed significant hemolytic activities with 61.7% and 38.4% at 100 µM, respectively. In addition, it was observed that only the copalic acid (98.5% ± 1.3%) and Hardwickiic acid (92.7% ± 4.9%) at 100 mM inhibited nitric oxide production in macrophages activated by lipopolysaccharide. In this assay, the diterpenes did not inhibit tumor necrosis factor-α production. The acids inhibited the production of IL-6, 3-acetoxy-copalic (23.8% ± 8.2%), kaurenoic (11.2% ± 5.7%), kolavic-15-methyl ester (17.3% ± 4.2%), and copalic (4.2% ± 1.8%), respectively, at 25 µM. The kaurenoic, 3-acetoxy-copalic and copalic acids increased IL-10 production. CONCLUSIONS: This study may provide a basis for future studies on the therapeutic role of diterpenic acids in treating acute injuries such as inflammation or skin disorders.

Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.161 mL	15.803 mL	31.606 mL
5 mM	0.632 mL	3.161 mL	6.321 mL
10 mM	0.316 mL	1.580 mL	3.161 mL
50 mM	0.063 mL	0.316 mL	0.632 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

1. Biological Activities and Cytotoxicity of Diterpenes from Copaifera spp. Oleoresins. Molecules. 2015 Apr 9;20(4):6194-210.
2. Antimicrobial activity of the methanolic extract, fractions and compounds from the stem bark of Irvingia gabonensis (Ixonanthaceae). J Ethnopharmacol. 2007 Oct 8;114(1):54-60.
3. Isolation and Insecticidal Activity of (-)-Hardwickiic acid from Croton aromaticus. Planta Med. 1987 Dec;53(6):575.

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