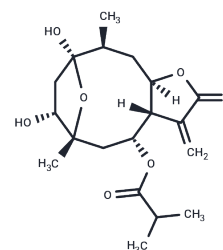


Tagitinin A

Chemical Properties

CAS No. :	59979-61-2
Formula:	C ₁₉ H ₂₈ O ₇
Molecular Weight:	368.42
Storage:	Powder: -20°C for 3 years In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



Biological Description

Description	Tagitinin A is a naturally occurring sesquiterpene lactone compound that acts as a dual agonist of peroxisome proliferator-activated receptor α/γ (PPAR α /PPAR γ) and exerts antihyperglycemic and antihyperlipidemic effects in diabetes research. Tagitinin A is able to bind directly to the ligand-binding domain of PPAR γ (IC ₅₀ =55 μ M), and also stimulates the PPAR. Tagitinin A can directly bind to the PPAR γ ligand binding domain (IC ₅₀ =55 μ M) and also stimulate the PPAR α -dependent activation of the SULT2A1 gene promoter. As a phytotoxin, Tagitinin A significantly inhibited the growth of wheat germ sheath.
Targets(IC50)	Antifection, PPAR
In vitro	Plants with pesticidal properties have been investigated for decades as alternatives to synthetics, but most progress has been shown in the laboratory. Consequently, research on pesticidal plants is failing to address gaps in our knowledge that constrain their uptake. Some of these gaps are their evaluation of their efficacy under field conditions, their economic viability and impact on beneficial organisms. METHODS AND RESULTS: Extracts made from four abundant weed species found in northern Tanzania, Tithonia diversifolia, Tephrosia vogelii, Vernonia amygdalina and Lippia javanica offered effective control of key pest species on common bean plants (Phaseolus vulgaris) that was comparable to the pyrethroid synthetic, Karate. The plant pesticide treatments had significantly lower effects on natural enemies (lady beetles and spiders). Plant pesticide treatments were more cost effective to use than the synthetic pesticide where the marginal rate of return for the synthetic was no different from the untreated control, around 4USD/ha, compared to a rate of return of around 5.50USD/ha for plant pesticide treatments. Chemical analysis confirmed the presence of known insecticidal compounds in water extracts of T. vogelii (the rotenoid deguelin) and T. diversifolia (the sesquiterpene lactone Tagitinin A). Sesquiterpene lactones and the saponin vernonioside C were also identified in organic extracts of V. amygdalina but only the saponin was recorded in water extracts which are similar to those used in the field trial. CONCLUSIONS: Pesticidal plants were better able to facilitate ecosystem services whilst effectively managing pests. The labour costs of collecting and processing abundant plants near farm land were less than the cost of purchasing synthetic pesticides.

Solubility Information

A DRUG SCREENING EXPERT

Solubility	DMSO: 16 mg/mL (43.43 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7143 mL	13.5715 mL	27.1429 mL
5 mM	0.5429 mL	2.7143 mL	5.4286 mL
10 mM	0.2714 mL	1.3571 mL	2.7143 mL
50 mM	0.0543 mL	0.2714 mL	0.5429 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Mkenda P, Mwanauta R, Stevenson PC, Ndakidemi P, Mtei K, Belmain SR. Extracts from Field Margin Weeds Provide Economically Viable and Environmentally Benign Pest Control Compared to Synthetic Pesticides. PLoS One. 2015 Nov 23;10(11):e0143530.

Phytotoxins from *Tithonia diversifolia*. J Nat Prod. 2015 May 22;78(5):1083-92.

Zhao L, et L. Tagitinin A from *Tithonia diversifolia* provides resistance to tomato spotted wilt orthotospovirus by inducing systemic resistance. Pestic Biochem Physiol. 2020 Oct;169:104654.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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