

Product Data Sheet

Product Name: Cauloside A

Cat. No.: GC60100

Chemical Properties

Cas. No. 17184-21-3

SMILES C[C@@]1(CC[C@@]2([H])[C@]3(C)CO)[C@@](CC=C([C@]4([H])CC5(C)C)[C@]1(CC[C@]4(CC5)C(O)=O)C)([H])[C@]2(CC[C@@H]3O[C@H](OC[C@@H]6O)[C@@H]([C@H]6O)O)C

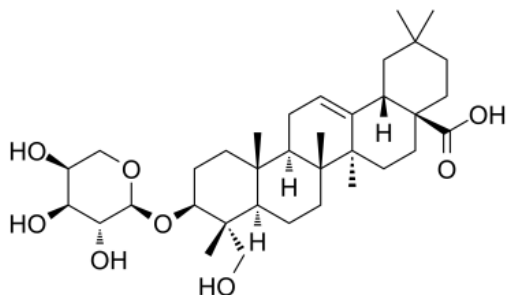
Formula $C_{35}H_{56}O_8$ M.Wt 604.81

Solubility Storage Store at 2-8°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

Cell experiment [1]:

Cell lines BV2 cells

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

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Preparation Method BV2 cells were seeded in 24-well plates at a density of 1×10^5 cells per well and treated with various concentrations (1, 5, 10, 50 $\mu\text{g/mL}$) of Cauloside A in the presence of LPS (100ng/mL) for 24h. After incubation, 50 μL of the culture supernatant was collected and mixed with an equal volume of Griess reagent. The absorbance was measured at 540nm using a microplate reader, and nitrite accumulation was assessed to evaluate NO production.

Reaction Conditions 1, 5, 10, 50 $\mu\text{g/mL}$; 24h

Applications Treatment with Cauloside A dose-dependently inhibited LPS-induced NO production, with the most significant inhibitory effect observed at a concentration of 50 $\mu\text{g/mL}$.

Animal experiment [1]:

Animal models ICR mice

Preparation Method ICR mice were orally pretreated with *C. thalictroides* crude extract (200mg/kg) containing Cauloside A for 30min, followed by intraperitoneal injection of LPS (1mg/kg) for an additional 24h, then mRNA expression levels of COX-2, iNOS, TNF- α , IL-1 β , and IL-6 in adrenal gland tissues were analyzed by PCR.

Dosage form 200mg/kg; p.o.

Applications Treatment with crude extract of *C. thalictroides* containing Cauloside A significantly inhibited LPS-induced mRNA expression of COX-2, iNOS, TNF- α , IL-1 β , and IL-6 in adrenal tissue.

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References:

[1] LEE Y, JUNG J C, ALI Z, et al. Anti-inflammatory effect of triterpene saponins isolated from blue cohosh (*Caulophyllum thalictroides*)[J]. Evidence-Based Complementary and Alternative Medicine, 2012, 2012(1): 798192.

Background

Cauloside A is a triterpenoid saponin isolated from plants such as *Dipsacus asper* and *Caulophyllum thalictroides*, possessing anti-inflammatory and antifungal activities^[1,2]. Cauloside A disrupts mitochondrial membrane integrity and impairs mitochondrial function^[3], and is commonly used in the study of plant fungal disease control, as well as in the development of anti-inflammatory and anti-tumor drugs^[4,5].

In vitro, using a whole-plant assay, Cauloside A (500µg/mL) was sprayed on rice and tomato leaves, and 24h later, the leaves were inoculated with the corresponding pathogens (rice blast (RCB), tomato gray mold (TGM), and tomato late blight (TLB)). The control efficacies against RCB, TGM, and TLB reached 95%, 83%, and 97%, respectively^[6]. Co-treatment of BV2 microglial cells with Cauloside A (1, 5, 10, 50µg/mL) and lipopolysaccharide (LPS, 100ng/mL) for 24h dose-dependently inhibited LPS-induced NO production, with the most significant inhibitory effect observed at a concentration of 50µg/mL^[7].

In vivo, ICR mice were orally pretreated with a crude extract of *C. thalictroides* containing Cauloside A (200mg/kg) for 30min, followed by intraperitoneal injection of LPS (1mg/kg) for an additional 24h, which significantly inhibited LPS-induced mRNA expression of COX-2, iNOS, TNF-α, IL-1β, and IL-6 in adrenal gland tissues^[7].

References:

[1] AVULA B, WANG Y H, RUMALLA C S, et al. Analytical methods for determination of magnoflorine and saponins from roots of *Caulophyllum thalictroides* (L.) Michx. using UPLC, HPLC and HPTLC[J]. Journal of Pharmaceutical and Biomedical Analysis, 2011, 56(5): 895-903.

[2] ALI Z, KHAN I A. Alkaloids and saponins from blue cohosh[J]. Phytochemistry, 2008, 69(4): 1037-1042.

[3] DATTA S, MAHDI F, ALI Z, et al. Toxins in botanical dietary supplements: blue cohosh

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components disrupt cellular respiration and mitochondrial membrane potential[J]. Journal of Natural Products, 2014, 77(1): 111-117.

[4] XIA Y G, LI G Y, LIANG J, et al. Genus Caulophyllum: an overview of chemistry and bioactivity[J]. Evidence-Based Complementary and Alternative Medicine, 2014, 2014(1): 684508.

[5] CUI M, YAO G, ZHANG Y, et al. The molecular mechanisms of Caulophyllum robustum Maxim extract inhibition by regulating FAK/PI3K signaling pathway in gastric cancer HGC-27 cells[J]. Journal of Ethnopharmacology, 2025, 337: 118867.

[6] CHOI N H, JANG J Y, CHOI G J, et al. Antifungal activity of sterols and dipsacus saponins isolated from Dipsacus asper roots against phytopathogenic fungi[J]. Pesticide Biochemistry and Physiology, 2017, 141: 103-108.

[7] LEE Y, JUNG J C, ALI Z, et al. Anti-inflammatory effect of triterpene saponins isolated from blue cohosh (Caulophyllum thalictroides)[J]. Evidence-Based Complementary and Alternative Medicine, 2012, 2012(1): 798192.

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