

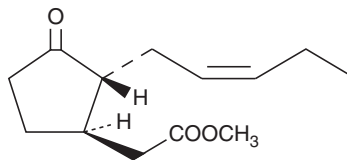
# Product Information



## (±)-Jasmonic Acid methyl ester

Item No. 9000059

**CAS Registry No.:** 39924-52-2  
**Synonym:** (±)-Methyl Jasmonate  
**Formal Name:** 3-oxo-2-(2-penten-1-yl)-cyclopentaneacetic acid, methyl ester  
**MF:** C<sub>13</sub>H<sub>20</sub>O<sub>3</sub>  
**FW:** 224.3  
**Purity:** ≥95% (mixture of isomers)  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A neat oil



### Laboratory Procedures

For long term storage, we suggest that (±)-jasmonic acid methyl ester be stored as supplied at -20°C. It should be stable for at least one year.

(±)-Jasmonic acid methyl ester is supplied as a neat oil. A stock solution may be made by dissolving the neat oil in an organic solvent purged with an inert gas. (±)-Jasmonic acid methyl ester is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of (±)-jasmonic acid methyl ester in these solvents is approximately 30, 15, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of (±)-jasmonic acid methyl ester can be prepared by directly dissolving the neat oil in aqueous buffers. The solubility of (±)-jasmonic acid methyl ester in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

The jasmonates are a group of plant stress hormones that naturally occur in plants following exposure to certain types of stresses, including pathogen and herbivore attacks. (±)-Jasmonic acid methyl ester is a mixture of *trans* (3R/7R and 3S/7S) isomers. (±)-Jasmonic acid methyl ester induces the synthesis of proteinase inhibitors in plant leaves.<sup>1</sup> In cancer cells, it suppresses proliferation and induces apoptosis.<sup>2</sup> More specifically, methyl jasmonate inhibits hexokinase that is bound to mitochondria.<sup>3</sup> As hexokinase is overexpressed in cancer cells and contributes to cancer cell growth and survival, methyl jasmonate's disruption of mitochondrial hexokinase activity selectively targets and kills cancer cells. (±)-Jasmonic acid methyl ester derivatives also have potential as anti-inflammatory agents.<sup>4</sup>

### References

1. Farmer, E.E. and Ryan, C.A. Interplant communication: Airborne methyl jasmonate induces synthesis of proteinase inhibitors in plant leaves. *Proc. Natl. Acad. Sci. USA* **87**, 7713-7716 (1990).
2. Fingrut, O. and Flescher, E. Plant stress hormones suppress the proliferation and induce apoptosis in human cancer cells. *Leukemia* **16**, 608-616 (2002).
3. Goldin, N., Arzoin, L., Heyfets, A., *et al.* Methyl jasmonate binds to and detaches mitochondria-bound hexokinase. *Oncogene* **27**, 4636-4643 (2008).
4. Dang, H.T., Lee, H.J., Yoo, E.S., *et al.* New jasmonate analogues as potential anti-inflammatory agents. *Bioorganic & Medicinal Chemistry* **16**, 10228-10235 (2008).

### Related Products

dinor-12-oxo Phytodienoic Acid-d<sub>5</sub> - Item No. 10696 • dinor-12-oxo Phytodienoic Acid - Item No. 10710 • (±)-Jasmonic Acid - Item No. 88300

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

#### MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Cayman Chemical Company makes **no warranty or guarantee** of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman **warrants only** to the original customer that the material will **meet our specifications at the time of delivery**.

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have **any obligation or liability**, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's **exclusive remedy** and Cayman's sole liability hereunder shall be limited to a **refund** of the purchase price, or at Cayman's option, the **replacement**, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our **Warranty and Limitation of Remedy** located on our website and in our catalog.

Copyright Cayman Chemical Company, 04/08/2011

### Cayman Chemical

#### Mailing address

1180 E. Ellsworth Road  
Ann Arbor, MI  
48108 USA

#### Phone

(800) 364-9897  
(734) 971-3335

#### Fax

(734) 971-3640

#### E-Mail

custserv@caymanchem.com

#### Web

www.caymanchem.com