

PRODUCT DATA SHEET

Methyl jacarate

Catalog No: 1234

Other Name: Methyl 8(Z),10(E),12(Z)-
Octadecatrienoate; Jacaric acid
methyl ester; Conjugated linolenic
acid methyl ester; CLnA

Source: natural, plant

Solubility: hexane, ethanol, methanol,
chloroform

CAS No: N/A

Mol. Formula: C₁₉H₃₂O₂

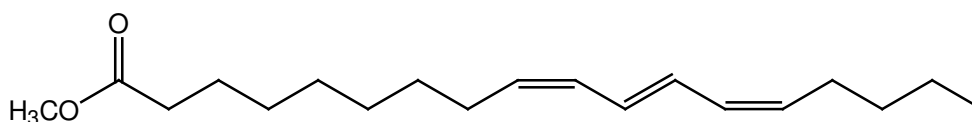
Mol. Weight: 293

Storage: -20°C

Purity: TLC >98, GC > 96%;
identity confirmed by MS

TLC System: hexane/ethyl ether, 80:20 by vol.

Appearance: liquid



Application Notes:

Jacaric acid is a conjugated linolenic acid (CLnA) that is found in high amounts in several natural oils, including *Jacaranda mimosifolia* seed oil. CLnAs contain 3 or 4 double bonds (which can be any combination of *cis* or *trans*) and predominantly 9,11,13- and 8,10,12-octadecatrienoic acid positional isomers. Research indicates that CLnAs possess strong antidiabetic, antiobesity, antiproliferative, and anticarcinogenic activities as well as a significant effect on lipid metabolism.⁽¹⁾ These physiological effects make CLnAs potential candidates as therapeutic agents, although more research is needed to verify previous findings.⁽²⁾ Some studies suggest that punigic acid and other CLnAs can reduce adipose tissue in mouse models, making it potentially useful as a weight-controlling lipid.⁽³⁾ CLnAs, including punigic, jacaric, and α -eleostearic acids, have been shown to suppress tumor cell growth through lipoperoxidation and apoptotic pathways.^(4,5,6) It has been found that some CLnAs, such as punigic acid and jacaric acid, exert a potent anti-inflammatory effect through the inhibition of TNF α -induced priming of ROS production and inhibition of cyclooxygenase 1 (COX-1).^(7,8)

Selected References:

1. P. Aruna et al. Health Benefits of Punigic Acid: A Review. *Comprehensive Reviews in Food Science and Food Safety*. Vol. 15 pp. 16-27, 2016
2. I. Pereira et al. Pomegranate Seed Oil (*Punica Granatum* L.): A Source of Punigic Acid (Conjugated α -Linolenic Acid). *Journal of Human Nutrition and Food Science*. Vol. 2(1) pp. 1024, 2014
3. Koba et al. Genetically Modified Rapeseed Oil Containing *cis*-9, *trans*-11, *cis*-13-Octadecatrienoic Acid Affects Body Fat Mass and Lipid Metabolism in Mice. *J. Agric Food Chem*. Vol. 55(9) pp. 3741-3748, 2007
4. T. Tsuzuki et al. Tumor growth suppression by α -eleostearic acid, a linolenic acid isomer with a conjugated triene system, via lipid peroxidation. *Carcinogenesis*. Vol. 25(8) pp. 1417-1425, 2004
5. J. Gasmi and J. Sanderson. Jacaric acid and its octadecatrienoic acid geoisomers induce apoptosis selectively in cancerous human prostate cells: a mechanistic and 3-D structure-activity study. *Phytomedicine*. Vol. 20 pp. 734-742, 2013
6. Liu, W.N., and Leung, K.N. Jacaric acid inhibits the growth of murine macrophage-like leukemia PU5-1.8 cells by inducing cell cycle arrest and apoptosis. *Cancer Cell Int*. Vol. 15 pp. 90, 2015
7. T. Boussetta et al. Punigic Acid a Conjugated Linolenic Acid Inhibits TNF α -Induced Neutrophil Hyperactivation and Protects from Experimental Colon Inflammation in Rats. *PLoS One*. Vol. 4(7) pp. e6468, 2009
8. Z. Mashhadi et al. Robust Inhibitory Effects of Conjugated Linolenic Acids on a Cyclooxygenase-related Linoleate 10S-Dioxygenase: Comparison with COX-1 and COX-2. *Biochim. Biophys. Acta*. Vol. 1851(10) pp. 1346-1352, 2015

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