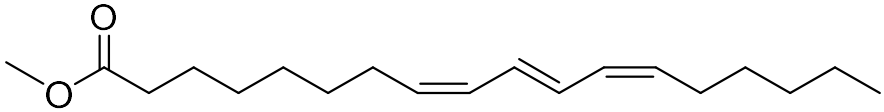
MATREYA LLC
Lipids and Biochemicals
A Cayman Chemical Company

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: $C_{19}H_{32}O_2$
Mol. Weight: 292
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 mimosofilia 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 posses strong antidiabetic, antiobesity, antiproliferative, and anticarcinogenic activities as well as a significant affect 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 punicic acid and other CLnAs can reduce adipose tissue in mouse models, making it potentially useful as a weight-controlling lipid.[3] CLnAs, including punicic, 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 punicic acid and jacaric acid, exert a potent anti-inflammatory effect through the inhibition of TNFα-induced priming of ROS production and inhibition of cyclooxygenase 1 (COX-1).[7,8]

Selected References:

1. P. Aruna et al. Health Benefits of Punicic 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 Punicic 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. Punicic Acid a Conjugated Linolenic Acid Inhibits TNFα-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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