

PRODUCT DATA SHEET

Sterculic acid

Catalog No: 1235

Common Name: 9,10-Methylene-octadec-9-enoic acid; 2-Octyl-1-cyclopropene-1-octanoic acid

Source: Natural, plant

Solubility: chloroform, hexane, ethyl ether, methanol

CAS No: 738-87-4

Molecular Formula: C₁₉H₃₄O₂

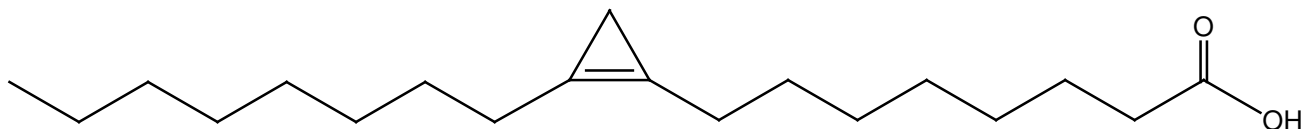
Molecular Weight: 295

Storage: -20°C

Purity: TLC, GC: >98%;

TLC System: hexane/ethyl acetate/acetic acid
80:20:1

Appearance: liquid



Application notes:

Sterculic acid is a monounsaturated fatty acid containing a cyclopropene ring, which gives it specific and unusual physiological properties. The major sources of sterculic acid are the seed oils of various plants, including *Sterculia foetida*, cotton, and *Bombax munguba*. Cyclopropenoids, such as sterculic acid, inhibit the enzyme $\Delta 9$ -desaturase, preventing the conversion of stearic acid to oleic acid, potentially causing significant health problems for organisms which consume them. Cyclopropenoid fatty acids have been reported to have several deleterious effects on mammals, such as carcinogenicity and acute and chronic toxicity.^{1,2} Because of the harmful effects of cyclopropenoids, cottonseed oil (a major world-wide edible oil which contains around 1% of these fatty acids) is required to be heat treated and hydrogenated before consumption. *Sterculia foetida* seeds have been used in traditional Chinese medicine as an anti-parasitic drug and recent research has found that sterculic acid and its methyl ester analog have a significant inhibitory effect towards the wide-spread parasite *Toxoplasma gondii*.³ Oil from *Sterculia foetida* has also been shown to have significant insecticide and possible anti-fungal properties, making it a potentially useful alternative to synthetic and more environmentally toxic compounds.^{4,5}

Selected References:

1. X. Bao et al., Characterization of cyclopropane fatty-acid synthase from *Sterculia foetida*, *J Biol Chem.* vol. 278(15) pp. 12846-12853, 2003
2. E. Fehling et al., Preparation of malvalic and sterculic acid methyl esters from *Bombax munguba* and *Sterculia foetida* seed oils, *JAOCS*, vol. 75(12), pp. 1757-1760, 1998
3. P. Hao et al., Sterculic Acid and Its Analogues Are Potent Inhibitors of *Toxoplasma gondii*, *Korean J Parasitol.* vol. 54(2) pp. 139-145, 2016
4. P. Rani and P. Rajasekharreddy, Toxic and antifeedant activities of *Sterculia Foetida* (L.) seed crude extract against *Spodoptera litura* (F.) and *Achaea Janata* (L.) *Journal of Biopesticides*, vol. 2(2) pp. 161-164 2009
5. K. Schmid and G. Patterson Effects of cyclopropenoid fatty acids on fungal growth and lipid composition, *Lipids*, vol. 23(3) pp. 248-252, 1988

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.