

PRODUCT DATA SHEET

Royal Jelly acid

Catalog number: 1754

Common Name: 10-Hydroxy-2-(E)-decenoic acid; *omega*-Hydroxy C10:1 (2-*trans*) fatty acid; 10-HDA

Source: synthetic

Solubility: chloroform, ethanol, methanol

CAS number: 14113-05-4

Molecular Formula: C₁₀H₁₈O₃

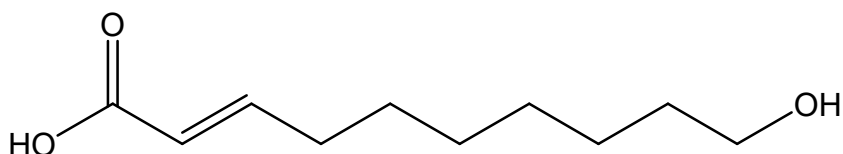
Molecular Weight: 186

Storage: -20°C

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

TLC System: chloroform/methanol/DI water/acetic acid (95:5:0.5:0.5 by Vol.)

Appearance: solid



Application Notes:

Royal Jelly acid (10-HDA) is one of the major fatty acids found in royal jelly, a substance secreted by young worker bees and fed to larvae. 10-HDA is being investigated for its pharmacological activities in treating several diseases, improving fertility, and preventing the spread of tumors. Hydroxy, saturated, and phosphoric acid esters of 10-HDA have also been found in Royal Jelly and these may also play a role in the pharmacological activities that have been cited.¹ 10-HDA promotes neurogenesis of neural stem/progenitor cells, cells capable of differentiating into neurons, astrocytes, or oligodendrocytes, and could provide an effective method to treat and prevent neurological disorders.² 10-HDA also promotes the production of collagen and collagen promoting growth factors, potentially making it useful for therapeutic and cosmetic applications.³ 10-HDA has been found to inhibit vascular endothelial growth factor which is a key regulator of normal and pathological angiogenesis and this could be used as a therapeutic treatment for retinopathies, rheumatoid arthritis, and tumor growth.⁴ Antibiotic actions have long been associated with 10-HDA and recently it has been confirmed to have good antibacterial properties.⁵

Selected References:

1. N. Noda et al. "Isolation and characterization of some hydroxy fatty and phosphoric acid esters of 10-hydroxy-2-decenoic acid from the royal jelly of honeybees (*Apis mellifera*)" *Lipids*, Vol. 40(8) pp. 833-838, 2005
2. N. Hattori et al. "Royal jelly and its unique fatty acid, 10-hydroxy-*trans*-2-decenoic acid, promote neurogenesis by neural stem/progenitor cells *in vitro*" *Biomedical Research*, Vol. 28(5) pp. 261-266, 2007
3. S. Koya-Miyata et al. "Identification of a Collagen Production-Promoting Factor from an Extract of Royal Jelly and Its possible Mechanism" *Biosci Biotechnol Biochem*, Vol. 68, 767-773, 2004
4. H. Izuta et al. "10-Hydroxy-2-decenoic Acid, a Major Fatty Acid from Royal Jelly, Inhibits VEGF-induced Angiogenesis in Human Umbilical Vein Endothelial Cells" *eCAM*, Vol. 6(4) pp. 489-494, 2009
5. K. Yatsunami and T. Echigo "Antibacterial Action of Royal Jelly" *Bull. Fac. Agr.*, no. 25 pp. 13-22, 1985

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