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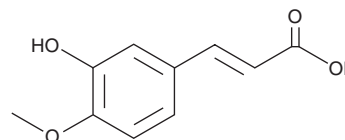
PRODUCT INFORMATION



Isoferulic Acid

Item No. 22715

CAS Registry No.: 537-73-5
Formal Name: 3-(3-hydroxy-4-methoxyphenyl)-2-propenoic acid
Synonyms: 3-methoxy Caffeic Acid, 3-hydroxy-4-Methoxycinnamic Acid, NSC 51987
MF: C₁₀H₁₀O₄
FW: 194.2
Purity: ≥98%
UV/Vis.: λ_{max}: 219, 243, 293, 323 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Isoferulic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the isoferulic acid in the solvent of choice. Isoferulic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of isoferulic acid in these solvents is approximately 10, 15, and 20 mg/ml, respectively.

Isoferulic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, isoferulic acid should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Isoferulic acid has a solubility of approximately 0.14 mg/ml in a 1:6 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Isoferulic acid is a cinnamic acid derivative that has antidiabetic activity.^{1,2} It binds to and activates α₁-adrenergic receptors (IC₅₀ = 1.4 μM) to enhance secretion of β-endorphin (EC₅₀ = 52.2 nM) and increase glucose use *in vitro*. Isoferulic acid increases glucose uptake and enhances glycogen synthesis in isolated soleus muscles from streptozocin-induced diabetic rats.³ *In vivo*, isoferulic acid induces a dose-dependent reduction in plasma glucose levels in streptozocin-induced diabetic rats. It also inhibits absorbance of intestinal maltase and sucrose *via* α-glucosidase *in vitro* (IC₅₀s = 760 and 450 μM, respectively).⁴

References

1. Liu, I.-M., Tsai, C.-C., Lai, T.-Y., *et al.* Stimulatory effect of isoferulic acid on α₁A-adrenoceptor to increase glucose uptake into cultured myoblast C₂C₁₂ cell of mice. *Auton. Neurosci.* **88(3)**, 175-180 (2001).
2. Liu, I.-M., Chen, W.-C., and Cheng, J.-T. Mediation of β-endorphin by isoferulic acid to lower plasma glucose in streptozotocin-induced diabetic rats. *J. Pharmacol. Exp. Ther.* **307(3)**, 1196-1204 (2003).
3. Liu, I.-M., Hsu, F.-L., Chen, C.-F., *et al.* Antihyperglycemic action of isoferulic acid in streptozotocin-induced diabetic rats. *Br. J. Pharmacol.* **129(4)**, 631-636 (2000).
4. Adisakwattana, S., Chantarasinlapin, P., Thammarat, H., *et al.* A series of cinnamic acid derivatives and their inhibitory activity on intestinal alpha-glucosidase. *J. Enzyme Inhib. Med. Chem.* **24(5)**, 1194-1200 (2009).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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