

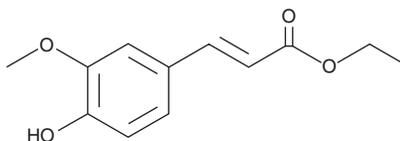
PRODUCT INFORMATION



Ferulic Acid ethyl ester

Item No. 11880

CAS Registry No.: 4046-02-0
Formal Name: 3-(4-hydroxy-3-methoxyphenyl)-
2-propenoic acid, ethyl ester
Synonyms: BBR 3222, NSC 14879
MF: C₁₂H₁₄O₄
FW: 222.2
Purity: ≥98%
UV/Vis.: λ_{max}: 218, 236, 326 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Ferulic acid ethyl ester is supplied as a crystalline solid. A stock solution may be made by dissolving the ferulic acid ethyl ester in the solvent of choice, which should be purged with an inert gas. Ferulic acid ethyl ester is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of ferulic acid ethyl ester in ethanol and DMF is approximately 20 mg/ml and approximately 11 mg/ml in DMSO.

Ferulic acid ethyl ester is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, ferulic acid ethyl ester should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Ferulic acid ethyl ester has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Ferulic acid is a hydroxycinnamic acid that is abundant in plants and originally derived from giant fennel (*F. communis*). This naturally-occurring phenolic has antioxidant activities that provide protection against inflammation and cancer.¹⁻⁴ Ferulic acid ethyl ester is a lipophilic derivative of ferulic acid, demonstrating increased ability to cross cell membranes.⁵ Ferulic acid ethyl ester has less antioxidant capacity than ferulic acid in neuronal PC12 cells (IC₅₀ = 66.7 μM for ferulic acid ethyl ester vs. 44.6 μM for ferulic acid, 2,2-diphenyl-1-picrylhydrazyl radical scavenging).⁶ However, ferulic acid ethyl ester increases the expression of heme oxygenase-1, Hsp70, and Hsp72, providing neuroprotection against amyloid β-peptide.^{7,8} Moreover, ferulic acid ethyl ester (25 μM) completely prevents cytotoxicity induced by ultraviolet B irradiation of normal human epidermal melanocytes, again associated with an induced expression of heme oxygenase-1 and Hsp70.⁹

References

1. Huang, M.T., Smart, R.C., Wong, C., *et al. Cancer Res.* **48**, 5941-5946 (1988).
2. Conney, A.H., Lysz, T., Ferraro, T., *et al. Adv. Enzyme Regul.* **31**, 385-396 (1991).
3. Iwahashi, H., Nishizaki, K., and Takagi, I. *Biochem. J.* **361**, 57-66 (2002).
4. Sudheer, A.R., Muthukumar, S., Devipriya, N.A., *et al. Toxicology* **243**, 317-329 (2008).
5. Sultana, R. *Biochim. Biophys. Acta* **1822(5)**, 748-752 (2012).
6. Garrido, J., Gaspar, A., Garrido, E.M., *et al. Biochimie* **94(4)**, 961-967 (2012).
7. Sultana, R., Ravagna, A., Mohmmad-Abdul, H., *et al. J. Neurochem.* **92(4)**, 749-758 (2005).
8. Joshi, G., Perluigi, M., Sultana, R., *et al. Neurochem. Int.* **48(4)**, 318-327 (2006).
9. Di Domenico, F., Perluigi, M., Foppoli, C., *et al. Free Radic. Res.* **43(4)**, 365-375 (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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 01/11/2022

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM