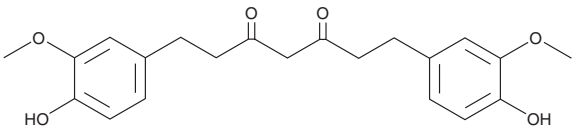
PRODUCT INFORMATION

Tetrahydrocurcumin

Item No. 11757

CAS Registry No.:	36062-04-1
Formal Name:	1,7-*bis*(4-hydroxy-3-methoxyphenyl)-3,5-heptanedione
Synonym:	NSC 687845
MF:	$C_{21}H_{24}O_6$
FW:	372.4
Purity:	≥95% (mixture of tautomers)
UV/Vis.:	λ_{max}: 281 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

Tetrahydrocurcumin is supplied as a crystalline solid. A stock solution may be made by dissolving the tetrahydrocurcumin in the solvent of choice, which should be purged with an inert gas. Tetrahydrocurcumin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of tetrahydrocurcumin in these solvents is approximately 0.25, 5, and 10 mg/ml, respectively.

Tetrahydrocurcumin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, tetrahydrocurcumin should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Tetrahydrocurcumin has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Tetrahydrocurcumin is a metabolite of curcumin (Item Nos. 81025 | 81025.1) that has diverse biological activities, including antioxidant, anti-inflammatory, anti-angiogenic, and anticancer properties.[1-4] It scavenges 2,2-diphenyl-1-picrylhydrazyl (DPPH; Item No. 14805) radicals in a cell-free assay with an EC_{50} value of 16.8 µM.[1] Tetrahydrocurcumin (50 µM) inhibits LPS-induced increases in inducible nitric oxide synthase (iNOS) and COX-2 expression in RAW 264.7 cells.[2] It also inhibits LPS-induced increases in TNF-α release when used at a concentration of 100 µM and increases in nitric oxide (NO) production and IL-6 levels in a concentration-dependent manner. Tetrahydrocurcumin reduces carrageenan-induced paw edema in rats (ED_{50} = 20 mg/kg).[3] It also reduces the formation of neocapillaries and decreases microvascular density as well as VEGF, VEGF receptor 2 (VEGFR2), and hypoxia-inducible factor-1α (HIF-1α) expression in a CaSki cervical cancer nude mouse xenograft model when administered at doses of 100, 300, and 500 mg/kg.[4]

References

1. Manjunatha, J.R., Bettadaiah, B.K., Negi, P.S., *et al.* Synthesis of quinoline derivatives of tetrahydrocurcumin and zingerone and evaluation of their antioxidant and antibacterial attributes. *Food Chem.* **136(2)**, 650-658 (2013).
2. Zhao, F., Gong, Y., Hu, Y., *et al.* Curcumin and its major metabolites inhibit the inflammatory response induced by lipopolysaccharide: Translocation of nuclear factor-κB as potential target. *Mol. Med. Rep.* **11(4)**, 3087-3093 (2015).
3. Mukhopadhyay, A., Basu, N., Ghatak, N., *et al.* Anti-inflammatory and irritant activities of curcumin analogues in rats. *Agents Actions* **12(4)**, 508-515 (1982).
4. Yoysungnoen, B., Bhattarakosol, P., Patumraj, S., *et al.* Effects of tetrahydrocurcumin on hypoxia-inducible factor-1α and vascular endothelial growth factor expression in cervical cancer cell-induced angiogenesis in nude mice. *Biomed. Res. Int.* 391748 (2015).

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