

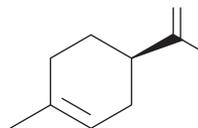
PRODUCT INFORMATION



(+)-Limonene

Item No. 21719

CAS Registry No.: 5989-27-5
Formal Name: 1-methyl-4R-(1-methylethenyl)-cyclohexene
Synonyms: (+)-Dipentene, D-Limonene, (R)-(+)-Limonene
MF: C₁₀H₁₆
FW: 136.2
Purity: ≥98%
UV/Vis.: λ_{max}: 203 nm
Supplied as: A neat oil
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

(+)-Limonene is supplied as a neat oil. A stock solution may be made by dissolving the (+)-limonene in the solvent of choice, which should be purged with an inert gas. (+)-Limonene is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of (+)-Limonene in these solvents is approximately 20 mg/ml.

(+)-Limonene is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (+)-limonene should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. (+)-limonene has a solubility of approximately 0.33 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

(+)-Limonene is a monoterpene that has been found in citrus oils and *Cannabis* and has diverse biological activities.¹⁻⁴ It is active against *S. aureus*, *B. cereus*, *E. faecalis*, *E. coli*, *P. aeruginosa*, *K. pneumoniae*, *M. catarrhalis*, and *C. neoformans* (MICs = 3-27 mg/ml).¹ In a human BGC-823 gastric cancer nude mouse orthotopic transplantation model, (+)-limonene inhibits tumor growth by 47.6% and reduces the number of metastases in the liver, peritoneum, and other organs when administered by gastric perfusion at a dose of 15 ml/kg.⁵ Dietary administration of (+)-limonene (5 and 10% in chow) reverses doxorubicin-induced decreases in glutathione (GSH) levels in rat kidney.³ (+)-Limonene is toxic to cockroaches and house flies (LD₅₀s = 700 and 90 µg/insect, respectively).⁶ Formulations containing (+)-limonene have been used as flavoring and fragrance agents, in the treatment of gallstones, heartburn, and gastroesophageal reflux disorder, as well as in the control of insects and algae.

References

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3. Rehman, M.U., Tahir, M., Khan, A.Q., et al. *Exp. Biol. Med. (Maywood)* **239(4)**, 465-476 (2014).
4. Russo, E. and Grotenhermen, F., eds. *Handbook of Cannabis Therapeutics from Bench to Bedside*. New York: Haworth Press, 2006.
5. Lu, X.-G., Zhan, L.-B., Feng, B.-A., et al. *World J. Gastroenterol.* **10(14)**, 2140-2144 (2004).
6. Karr, J.R. and Coats, J.R. *J. Pesticide Sci.* **12(2)**, 287-290 (1988).

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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