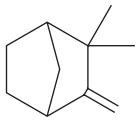
PRODUCT INFORMATION

(±)-Camphene

Item No. 24478

CAS Registry No.: 79-92-5
Formal Name: 2,2-dimethyl-3-methylene-bicyclo[2.2.1]heptane
Synonyms: DL-Camphene, NSC 4165
MF: $C_{10}H_{16}$
FW: 136.2
Purity: ≥97%
Supplied as: A 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

(±)-Camphene is supplied as a solid. A stock solution may be made by dissolving the (±)-camphene in the solvent of choice, which should be purged with an inert gas. (±)-Camphene is soluble in chloroform and slightly soluble in ethanol.

Description

(±)-Camphene is a bicyclic monoterpene found in a variety of plants, including *Cannabis*, that has diverse biological activities, including antiproliferative, pro-apoptotic, hypolipidemic, and insecticidal properties.[1-5] It inhibits proliferation of B16/F10-Nex2 mouse melanoma, as well as human A2058 melanoma, HL-60 leukemia, U87MG glioblastoma, and SK-BR-3 breast cancer cells (IC_{50}s = 71.2, 35.2, 27, 55.4, and 34.7 µg/ml, respectively).[2] (±)-Camphene (70 µg/ml) increases caspase-3 activity and induces apoptosis and endoplasmic reticulum stress in B16/F10-Nex2 cells. It lowers plasma levels of total cholesterol, LDL cholesterol, and triglycerides (TGs) in a Triton WR-1339-induced rat model of hyperlipidemia when administered at a dose of 1.5 µg/g.[3] Dietary administration of (±)-camphene (0.2%) also inhibits hepatic steatosis and insulin resistance in a mouse model of high-fat diet-induced obesity.[4] It also has larvicidal activity against third instar *H. armigera* larvae (LC_{50} = 10.64 µg/ml) and ovicidal activity against *H. armigera* eggs (EC_{50} = 35.39 µg/ml).[5] Formulations containing (±)-camphene have been used as perfume and food additives.

References

1. Elzinga, S., Fischedick, J., Podkolinski, R., *et al.* Cannabinoids and terpenes as chemotaxonomic markers in *Cannabis*. *Nat. Prod. Chem. Res.* **3(4)**, 181 (2015).
2. Girola, N., Figueiredo, C.R., Farias, C.F., *et al.* Camphene isolated from essential oil of *Piper cernuum* (Piperaceae) induces intrinsic apoptosis in melanoma cells and displays antitumor activity *in vivo*. *Biochem. Biophys. Res. Commun.* **467(4),** 928-934 (2015).
3. Vallianou, I., Peroulis, N., Pantazis, P., *et al.* Camphene, a plant-derived monoterpene, reduces plasma cholesterol and triglycerides in hyperlipidemic rats independently of HMG-CoA reductase activity. *PLoS One* **6(11),** e20516 (2011).
4. Kim, S., Choi, Y., Choi, S., *et al.* Dietary camphene attenuates hepatic steatosis and insulin resistance in mice. *Obesity (Silver Spring)* **22(2),** 408-417 (2014).
5. Benelli, G., Govindarajan, M., Rajeswary, M., *et al.* Insecticidal activity of camphene, zerumbone and α-humulene from *Cheilocostus speciosus* rhizome essential oil against the Old-World bollworm, *Helicoverpa armigera*. *Ecotoxicol. Environ. Saf.* **148**, 781-786 (2018).

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