

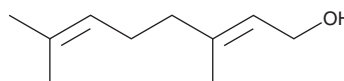
# PRODUCT INFORMATION



## Geraniol

Item No. 23166

CAS Registry No.: 106-24-1  
Formal Name: 3,7-dimethyl-2E,6-octadien-1-ol  
Synonyms:  $\beta$ -Geraniol, (E)-Geraniol, NSC 9279  
MF:  $C_{10}H_{18}O$   
FW: 154.3  
Purity:  $\geq 98\%$   
Supplied as: A liquid  
Storage:  $-20^{\circ}C$   
Stability:  $\geq 2$  years  
Item Origin: Synthetic



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

### Laboratory Procedures

Geraniol is supplied as a liquid. A stock solution may be made by dissolving the geraniol in the solvent of choice, which should be purged with an inert gas. Geraniol is slightly soluble in chloroform and methanol.

### Description

Geraniol is a terpene alcohol found in a variety of plants, including *Cannabis*, that has diverse biological activities, including insecticide, antioxidant, anti-inflammatory, anticancer, and antimicrobial properties.<sup>1,2</sup> Geraniol is an insecticide that induces 100% mortality of *C. maculatus*, when used at a concentration of 16  $\mu l$  in an alimentary substrate.<sup>3</sup> It has an  $LD_{50}$  value of 0.714  $\mu l$  in *C. maculatus* but does not produce adverse effects in rats when administered in the diet at 10,000 ppm for 16 weeks.<sup>2,3</sup> Topical administration of geraniol (250  $\mu g$ ) prevents lipid peroxidation, increases glutathione (GSH) levels, and increases the activity of antioxidant enzymes, including catalase, glutathione reductase, glucose-6-phosphate dehydrogenase, and superoxide dismutase in a mouse skin model of oxidative stress and inflammation induced by phorbol 12-myristate 13-acetate (TPA; Item No. 10008014).<sup>4</sup> It also decreases the levels of TNF- $\alpha$ , IL-6, and IL-1 $\beta$  in the same model. Geraniol (100 mg/kg) inhibits HMG-CoA reductase and reduces lipogenesis in hamsters fed an atherogenic diet as a model of hyperlipidemia when administered at a dose of 100 mg/kg.<sup>5</sup> It also induces apoptosis in and decreases viability of COLO 205 cancer cells ( $IC_{50} = 20 \mu M$ ).<sup>6</sup> Formulations containing geraniol have been used as fragrance ingredients and as insecticides in agriculture.

### References

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2. Chen, W. and Viljoen, A.M. Geraniol — A review of a commercially important fragrance material. *S. Afr. J. Bot.* **76**(4), 643-651 (2010).
3. Reis, S.L., Mantello, A.G., Macedo, J.M., *et al.* Typical monoterpenes as insecticides and repellents against stored grain pests. *Molecules* **21**(3), 258 (2016).
4. Khan, A.Q., Khan, R., Qamar, W., *et al.* Geraniol attenuates 12-O-tetradecanoylphorbol-13-acetate (TPA)-induced oxidative stress and inflammation in mouse skin: Possible role of p38 MAP Kinase and NF- $\kappa B$ . *Exp. Mol. Pathol.* **94**(3), 419-429 (2013).
5. Jayachandran, M., Chandrasekaran, B., and Namasivayam, N. Effect of geraniol, a plant derived monoterpene on lipids and lipid metabolizing enzymes in experimental hyperlipidemic hamsters. *Mol. Cell. Biochem.* **398**(1-2), 39-53 (2015).
6. Qi, F., Yan, Q., Zheng, Z., *et al.* Geraniol and geranyl acetate induce potent anticancer effects in colon cancer Colo-205 cells by inducing apoptosis, DNA damage and cell cycle arrest. *J. BUON.* **23**(2), 346-352 (2018).

#### 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

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#### 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