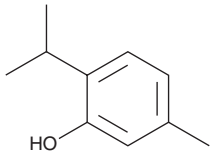
PRODUCT INFORMATION

Thymol

Item No. 34496

CAS Registry No.:	89-83-8
Formal Name:	5-methyl-2-(1-methylethyl)-phenol
Synonyms:	*p*-Cymen-3-ol, IPMP, 2-isopropyl-5-Methylphenol, NSC 11215, NSC 47821, NSC 49142
MF:	$C_{10}H_{14}O$
FW:	150.2
Purity:	≥95%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥2 years
Item Origin:	Synthetic



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

Laboratory Procedures

Thymol is supplied as a solid. A stock solution may be made by dissolving the thymol in the solvent of choice, which should be purged with an inert gas. Thymol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of thymol in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of thymol can be prepared by directly dissolving the solid in aqueous buffers. The solubility of thymol in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Thymol is a terpenoid that has been found in *T. vulgaris* and has diverse biological activities.[1-5] It activates transient receptor potential vanilloid 3 (TRPV3) currents in HEK293 cells expressing mouse or human TRPV3 when used at a concentration of 500 µM.[2] Thymol is active against a variety of plant pathogenic fungi, including *A. niger*, *A. ochraceus*, *Cladosporium*, and *F. oxysporum* (MICs = 200, 125, 100, and 300 µg/ml, respectively).[3] It is also active against the bacteria *E. coli* and *S. aureus* but not *P. aeruginosa* (MICs = 500, 500, and >1,000 µg/ml, respectively).[4] Thymol inhibits lipid peroxidation in ox brain phospholipid liposomes by 45-82% when used at concentrations ranging from 0.067 to 0.664 mM and scavenges trichloromethylperoxyl ($CCl_3O_2^-$) radicals.[5] It also reduces inflammatory cell infiltration into the airway, decreases the levels of IL-4, IL-5, and IL-13 in bronchoalveolar lavage fluid (BALF), and prevents airway hyperresponsiveness in a mouse model of ovalbumin-induced allergic asthma when administered at a dose of 16 mg/kg.[1] Formulations containing thymol have been used as food flavorings, antiseptics, and pesticides.

References

1. Zhou, E., Fu, Y., Wei, Z., *et al*. Thymol attenuates allergic airway inflammation in ovalbumin (OVA)-induced mouse asthma. *Fitoterapia* **96**, 131-137 (2014).
2. Xu, H., Delling, M., Jun, J.C., *et al*. Oregano, thyme and clove-derived flavors and skin sensitizers activate specific TRP channels. *Nat. Neurosci.* **9(5)**, 628-635 (2006).
3. Abbaszadeh, S., Sharifzadeh, A., Shokri, H., *et al*. Antifungal efficacy of thymol, carvacrol, eugenol and menthol as alternative agents to control the growth of food-relevant fungi. *J. Mycol. Med.* **24(2)**, e51-e56 (2014).
4. Walsh, S.E., Maillard, J.-Y., Russell, A.D., *et al*. Activity and mechanisms of action of selected biocidal agents on Gram-positive and -negative bacteria. *J. Appl. Microbiol.* **94(2)**, 240-247 (2003).
5. Aeschbach, R., Loliger, J., Scott, B.C., *et al*. Antioxidant actions of thymol, carvacrol, 6-gingerol, zingerone and hydroxytyrosol. **32(1)**, 31-36 (1994).

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