3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Tolnaftate

Product Number **T 6638**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{19}H_{17}NOS$
Molecular Weight: 307.4
CAS Number: 2398-96-1
Melting Point: 110.5-111.5 °C[1]
Synonyms: methyl(3-methylphenyl)carbamothioic acid *O*-2-naphthalenyl ester; m,*N*-dimethylthiocarbanilic acid *O*-2-naphthyl ester[1]

Tolfanate is an antifungal compound which has activity against such species as *Epidermophyton*, *Microsporum*, *Trichophyton* species, and *Malassezia furfur*.[1,2] Its proposed mechanism of action includes the inhibition of squalene epoxidase.[3] The use of tolfanate to inhibit squalene epoxidase activity in *Candida albicans* (500 µM)[4] and in *Trichophyton rubrum* (IC_{50} = 51.5 nM) has been studied.[5]

The activities of various antifungal compounds, including tolfanate, against dermatophytes from different species have been investigated.[6] An *in vitro* investigation of tolfanate penetration into the human nail plate in the presence of N-acetyl-L-cysteine or 2-mercaptoethanol has been described.[7] The effect of tolfanate on the biosynthesis of lipids in *Aspergillus niger* protoplasts has been studied.[8]

Several LC methods for the analysis of tolfanate in formulations have been described.[9,10]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in chloroform (50 mg/ml), yielding a clear, colorless to very faint yellow solution. It is also soluble in acetone and sparingly soluble in ethanol and methanol.[1]

References

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4. Georgopapadakou, N. H., and Bertasso, A., Effects of squalene epoxidase inhibitors on *Candida albicans*. Antimicrob. Agents Chemother., **36(8)**, 1779-1781 (1992).
5. Favre, B., and Ryder, N. S., Characterization of squalene epoxidase activity from the dermatophyte *Trichophyton rubrum* and its inhibition by terbinafine and other antimycotic agents. Antimicrob. Agents Chemother., **40(2)**, 443-447 (1996).
6. Favre, B., et al., Comparison of *in vitro* activities of 17 antifungal drugs against a panel of 20 dermatophytes by using a microdilution assay. J. Clin. Microbiol., **41(10)**, 4817-4819 (2003).
7. Kobayashi, Y., et al., Enhancing effect of N-acetyl-L-cysteine or 2-mercaptoethanol on the *in vitro* permeation of 5-fluorouracil or tolnaftate through the human nail plate. Chem. Pharm. Bull. (Tokyo), **46(11)**, 1797-1802 (1998).
8. Oh, K., et al., Effects of antimycotics on the biosynthesis of cellular macromolecules in *Aspergillus niger* protoplasts. Mycopathologia, **122(3)**, 135-141 (1993).
9. Thompson, R. D., and Carlson, M., Liquid chromatographic determination of tolnaftate in commercial products. J. Assoc. Off. Anal. Chem., **74(4)**, 603-607 (1991).
10. Dash, A. K., A liquid chromatographic method for the determination of tolnaftate in pharmaceutical formulations. J. Pharm. Biomed. Anal., **11(9)**, 847-853 (1993).