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ProductInformation

Phorbol

Product Number **P 8893**
Storage Temperature -0 °C

Product Description

Molecular Formula: $C_{20}H_{28}O_6$
Molecular Weight: 364.4
CAS Number: 17673-25-5
Melting Point: 250-251 °C (anhydrous crystals, with decomposition)[1]
λ_{max}: 235 nm, 334 nm (ethanol)[1]
Extinction Coefficient: E^{mM} = 5.2 (235 nm), 0.07 (334 nm)[1]
Specific Rotation: +102° (water), +118° (4 mg/ml, dioxane)[1]
Synonym: 4β,9α,12β,13α,20-pentahydroxytiglia-1,6-dien-3-one; [1αR-(1aα,1bβ,4aβ,7aα,7bα,8α,9β9aα)]-1,1a,1b,4,4a,7a,7b,8,9,9a-decahydro-4a,7b,9,9a-tetrahydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-5H-cyclopropa[3,4]benz[1,2-e]azulen-5-one[1]

Phorbol is a tetracyclic diterpene alcohol that is the parent alcohol of the tumor-inducing compounds that occur naturally in croton oil, the oil found in the seeds of *Croton tiglium* L. (*Euphorbiaceae*). The structural skeleton of phorbol is based on cyclopropabenzazulene. The name "phorbol" is used as a simplified term for the diterpene parent compound as the 4β-isomer. The detailed structural and stereochemical analysis of phorbol has been published.[2]

Croton oil has been known to be a carcinogenic agent.[3,4] However, the esters of phorbol are the active carcinogenic agents in croton oil, rather than the parent phorbol itself.[1] A review of phorbol and phorbol esters has been published.[5] The chemical synthesis of phorbol esters from the parent phorbol has been described.[6]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in ethanol (50 mg/ml), with heat and sonication as needed, yielding a clear, colorless to very faint yellow solution.

References

1. The Merck Index, 12th ed., Entry# 7487.
2. Hecker, E., et al., Structure and stereochemistry of the tetracyclic diterpene phorbol from *Croton tiglium* L. Tetrahedron Lett., **8**, 3165-3170 (1967).
3. Blumberg, P. M., *In vitro* studies on the mode of action of the phorbol esters, potent tumor promoters, Part 2. Crit. Rev. Toxicol., **8(3)**, 199-234 (1981).
4. Ingram, A. J., and Grasso, P., Evidence for and possible mechanisms of non-genotoxic carcinogenesis in mouse skin. Mutat. Res., **248(2)**, 333-340 (1991).
5. Hecker, E., and Schmidt, R., Phorbolesters - the irritants and cocarcinogens of *Croton tiglium* L. Fortschr. Chem. Org. Naturst., **31**, 377-467 (1974).
6. Tseng, S. S., et al., Synthesis of 4aα-phorbol 9-myristate 9a-acetate and related esters. J. Org. Chem., **42(23)**, 3645-3649 (1977).

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