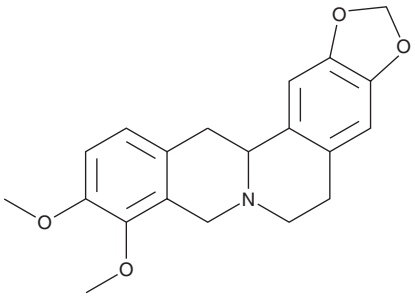
PRODUCT INFORMATION

Tetrahydroberberine

Item No. 33157

CAS Registry No.: 522-97-4
Formal Name: 5,8,13,13a-tetrahydro-9,10-dimethoxy-6H-benzo[g]-1,3-benzodioxolo[5,6-a]quinolizine
Synonyms: Canadine, NSC 36351, NSC 94918, (±)-Tetrahydroberberine, Xanthopuccine
MF: $C_{20}H_{21}NO_4$
FW: 339.4
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Plant/*Phellodendron chinense*



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

Laboratory Procedures

Tetrahydroberberine is supplied as a crystalline solid. A stock solution may be made by dissolving the tetrahydroberberine in the solvent of choice, which should be purged with an inert gas. Tetrahydroberberine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of tetrahydroberberine in these solvents is approximately 1 mg/ml.

Tetrahydroberberine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, tetrahydroberberine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Tetrahydroberberine has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Tetrahydroberberine is an isoquinoline alkaloid that has been found in *C. turtschaninovii* and has diverse biological activities.[1-4] It inhibits iron- and ascorbate-induced lipid peroxidation in rat liver microsomes (IC_{50} = 13.7 µM).[1] Tetrahydroberberine binds to dopamine D_2 receptors and the serotonin (5-HT) receptor subtype 5-HT_{1A} (K_is = 0.83 and 4.2 µM, respectively).[2] It inhibits potassium currents induced by acetylcholine (Item No. 23829) in primary rat hippocampal CA1 pyramidal neurons (IC_{50} = 13 µM).[3] Tetrahydroberberine stimulates mouse C12C12 myoblast differentiation in a concentration-dependent manner.[4]

References

1. Ubeda, A., Montesinos, C., Payá, M., *et al*. Antioxidant action of benzylisoquinoline alkaloids. *Free Radic. Res. Commun.* **18(3)**, 167-175 (1993).
2. Lee, T.H., Kim, K.H., Lee, S.O., *et al*. Tetrahydroberberine, an isoquinoline alkaloid isolated from corydalis tuber, enhances gastrointestinal motor function. *J. Pharmacol. Exp. Ther.* **338(3)**, 917-924 (2011).
3. Wu, J. and Jin, G.Z. Tetrahydroberberine inhibits acetylcholine-induced K^+ current in acutely dissociated rat hippocampal CA1 pyramidal neurons. *Neurosci. Lett.* **222(2)**, 115-118 (1997).
4. Lee, H., Lee, S.-J., Bae, G.-U., *et al*. Canadine from *Corydalis turtschaninovii* stimulates myoblast differentiation and protects against myotube atrophy. *Int. J. Mol. Sci.* **18(12)**, 2748 (2017).

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