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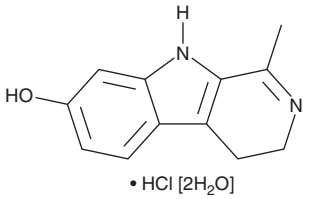
PRODUCT INFORMATION

Harmalol (hydrochloride hydrate)

Item No. 36090

CAS Registry No.:	6028-00-8
Formal Name:	4,9-dihydro-1-methyl-3H-pyrido[3,4-b] indol-7-ol, monohydrochloride, dihydrate
Synonyms:	11-hydroxy Harmalan, Harmidol
MF:	$C_{12}H_{12}N_2O$ • HCl [$2H_2O$]
FW:	272.7
Purity:	≥98%
UV/Vis.:	λ_{max}: 216, 386 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/Unspecified sp.



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

Laboratory Procedures

Harmalol (hydrochloride hydrate) is supplied as a solid. A stock solution may be made by dissolving the harmalol (hydrochloride hydrate) in the solvent of choice, which should be purged with an inert gas. Harmalol (hydrochloride hydrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of harmalol (hydrochloride hydrate) in these solvents is approximately 2, 1, and 10 mg/ml, respectively.

Description

Harmalol is a β-carboline alkaloid and an active metabolite of harmaline that has been found in *P. harmala* and has diverse biological activities.[1-5] It is an inhibitor of dual-specificity tyrosine phosphorylation-regulated kinase 1A (DYRK1A; IC_{50} = 0.63 µM) and monoamine oxidase A (MAO-A; IC_{50} = 0.66 µM).[3] It is selective for DYRK1A over Cdk1, Cdk5, CK1α1, Clk4, DYRK2, Pim-1, and GSK3β but also inhibits DYRK1B and Clk1 at 10 µM. It inhibits proliferation of H4 human glioblastoma cells (IC_{50}s = 23.7 µM). Harmalol (0.5-12.5 µM) reduces increases in the levels of the cytochrome P450 (CYP) isoform CYP1A1 induced by 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) in HepG2 cells and prevents TCDD-induced activation of the aryl hydrocarbon receptor (AhR) in guinea pig hepatic cytosolic extracts.[4] It reduces glutamate-induced cytotoxicity, cytochrome *c* release, caspase-3 activation, and the production of reactive oxygen species (ROS) in PC12 cells when used at a concentration of 25 µM.[5] This product is also available as an analytical reference standard (Item No. 35145).

References

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3. Tarpley, M., Oladapo, H.O., Strepay, D., *et al. Eur. J. Pharm. Sci.* **162**, 105821 (2021).
4. El Gendy, M.A.M., Soshilov, A.A., Denison, M.S., *et al. Food Chem. Toxicol.* **50(2)**, 353-362 (2012).
5. Han, E.S. and Lee, C.S. *Biomol. Ther. (Seoul)* **11(2)**, 112-118 (2003).

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