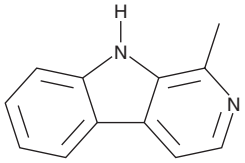
PRODUCT INFORMATION

Harmane

Item No. 29613

CAS Registry No.:	486-84-0
Formal Name:	1-methyl-9H-pyrido[3,4-b]indole
Synonyms:	1-Methyl-β-Carboline, NSC 54439
MF:	$C_{12}H_{10}N_2$
FW:	182.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 213, 234, 249, 288 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Harmane is supplied as a solid. A stock solution may be made by dissolving the harmane in the solvent of choice, which should be purged with an inert gas. Harmane is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of harmane in ethanol is approximately 10 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Harmane is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, harmane should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Harmane 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

Harmane is a β-carboline that has been found in *P. harmala*, as well as in cooked meats and tobacco and has diverse biological activities.[1-7] It is an inhibitor of monoamine oxidase A (MAO-A; IC_{50} = 0.5 µM) that also inhibits MAO-B (IC_{50} = 5 µM).[3] Harmane is an inverse agonist of $GABA_A$ receptors with IC_{50} values of 7.2 and 8.3 µM in radioligand binding assays using rat brain and bovine retina, respectively.[4] It is a DNA intercalating agent that induces cell cycle arrest at the G_1 phase in NCI-H460 cells and the G_2 phase in T47D and HCT116 cells and induces apoptosis in HCT116 cells when used at a concentration of 50 µM.[1,5] However, it also has mutagenic and carcinogenic effects and induces the transcription of the aryl hydrocarbon receptor (AhR) target cytochrome P450 (CYP) isoform CYP1A1 in HepG2 cells when used at concentrations ranging from 1 to 50 µM.[8] Harmane (2.5 mg/kg) prevents memory retrieval deficits induced by 24, but not 12 or 36, hours of REM sleep deprivation in mice in contextual and fear conditioning paradigms but inhibits memory consolidation when administered following training at doses of 5 and 10 mg/kg in one-trial passive-avoidance task.[6,7] Harmane is selectively neurotoxic to dopaminergic neurons in *C. elegans* and plasma levels of harmane are increased in patients with essential tremor and Parkinson's disease.[2]

References

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