**Natural Products** 



# **Harmaline Datasheet**

4<sup>th</sup> Edition (Revised in July, 2016)

## [ Product Information ]

Name: Harmaline

Catalog No.: CFN98285

Cas No.: 304-21-2

**Purity:** >=98%

M.F: C<sub>13</sub>H<sub>14</sub>N<sub>2</sub>O

M.W: 214.26

Physical Description: Powder

Synonyms: 3,4-Dihydroharmine; 7-Methoxy-1-methyl-3,4-dihydro-2H-beta-carboline;

7-Methoxy-1-methyl-4,9-dihydro-3H-beta-carboline; Harmine.

## [ Intended Use ]

- 1. Reference standards;
- 2. Pharmacological research;
- 3. Synthetic precursor compounds;
- 4. Intermediates & Fine Chemicals;
- 5. Others.

# [Source]

The herbs of *Peganum harmala L*.

## [Biological Activity or Inhibitors]

Harmaline is deprived from toxicity toward human cells and Leishmania promastigotes, however it exerts a strong antileishmanial activity toward the intracellular amastigote form of the parasite.<sup>[1]</sup>

Harmaline can induce rhythmic activity in the olivo-cerebello-bulbar system of the cat.<sup>[2]</sup> Harmaline, harmalol, and harmine can attenuate brain damage in mice treated with MPTP and MPP(+)-induced mitochondrial damage, they may prevent dopamine-induced mitochondrial damage and PC12 cell death through a scavenging action on reactive oxygen species and inhibition of monoamine oxidase and thiol oxidation. <sup>[3]</sup>

Harmaline and harmine have vasorelaxant effects, they have antagonist effects on alpha1-adrenorecepteors in non-competitive manner, they also exert an antioxidant activity by scavenging the free radical generated by DPPH; they can act as blockers L-type voltage-dependent Ca2+ channels (VOCs), as inhibitors of phosphodiesterase resulting in an increase of the second messenger (cAMP and cGMP) levels and finally reduce the levels of free radicals in tissues.<sup>[4]</sup>

Harmaline tremor is a well known animal model of essential tremor (ET), harmaline-induced tremor may be useful as a preclinical method to identify potential medications for ET.<sup>[5]</sup>

Harmaline has bioinsecticidal effect on Plodia interpunctella development (Lepidoptera: Pyralidae).<sup>[6]</sup>

#### [Solvent]

Chloroform, Dichloromethane, Ethyl Acetate, DMSO, Acetone, etc.

## [ HPLC Method ]<sup>[7]</sup>

Mobile phase: Isopropyl alcohol-Acetonitrile-Water-Formic acid(pH adjusted 8.6 with triethylamine) =100:100:300:0.3; Flow rate: 1.5 ml/min; Column temperature: Room Temperature; The wave length of determination: 330 nm.

# [Storage]

2-8°C, Protected from air and light, refrigerate or freeze.

## [ References ]

[1] Di G C, Delmas F, Ollivier E, et al. Exp. Parasitol., 2004, 106(3-4):67-74.

[2] De M C, Lamarre Y. Brain Res., 1973, 53(1):81-95.

[3] Lee C S, Han E S, Jang Y Y, et al. J. Neurochem. 2000, 75(2):521-31.

[4] Berrougui H, Martín-Cordero C, Khalil A, et al. Pharmacol. Res., 2006, 54(2):150-7.

[5] Martin F C, Thu L A, Handforth A. *Movement Disord.*, 2005, 20(3):298-305.

[6] Rharrabe K, Bakrim A, Ghailani N, et al. Pestic. Biochem. Phys., 2007, 89(2):137-45.

[7] Kartal M, Altun M L, Kurucu S. J. Pharmaceut. Biomed., 2003, 31(2):263-9.

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