Natural Products

ChemFaces

Neferine Datasheet

4th Edition (Revised in July, 2016)

[Product Information]

Name: Neferine

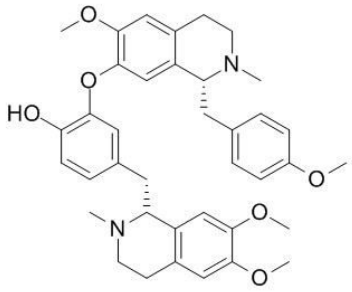
Catalog No.: CFN99581

Cas No.: 2292-16-2

Purity: >=98%

M.F: $C_{38}H_{44}N_2O_6$

M.W: 624.77



Physical Description: White powder

Synonyms:4-[[(1R)-6,7-Dimethoxy-2-methyl-3,4-dihydro-1H-isoquinolin-1-yl]methyl]-2-[[(1R)-6-methoxy-1-[(4-methoxyphenyl)methyl]-2-methyl-3,4-dihydro-1H-isoquinolin-7-yl]oxy]phenol.

[Intended Use]

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

[Source]

The plantule of *Nelumbo nucifera Gaertn.*

[Biological Activity or Inhibitors]

Neferine shows significant improvement in cognitive impairment in scopolamine-induced amnesia animal models and moderate inhibitory activities in cholinesterases (ChEs) and beta-site APP cleaving enzyme 1 (BACE1) assays; it also exhibits notable scavenging activities against DPPH, ABTS, NO, and O(2)(-) radicals, as well as ONOO(-), it demonstrates remarkable inhibitory activity against lipid peroxidation and protein nitration in cell-free antioxidant assays and moderate inhibitory activity of NO generation with exceptional suppression of NF-kappaB activation in cell-based assays; suggests that the anti-amnesic effect of neferine may be mediated via antioxidant and anti-inflammatory capacities, as well as inhibition of ChEs and BACE1.[1]

Neferine induces autophagy through the inhibition of PI3K/Akt/mTOR pathway and ROS hyper generation in A549 cells.[2]

Neferine attenuates bleomycin-induced pulmonary fibrosis in vitro and in vivo, the beneficial effect of neferine may be associated with its activities of anti-inflammation, antioxidation, cytokine and NF-kappaB inhibition. [3]

Neferine has effects similar to rosiglitazone in decreasing fasting blood glucose, insulin, triglycerides (TG), tumor necrosis factor-alpha (TNF-alpha) and enhancing insulin sensitivity in insulin resistant rats.[4]

Neferine inhibits proliferation of human osteosarcoma cells by promoting p38 MAPK-mediated p21 stabilization.[5]

Neferine shows anti-anxiety effects and that neferine may participate in the efficacy of the sedative effects of embryos of the seeds of Nelumbo nucifera, the mechanisms of the sedative effects of neferine are not similar to those of diazepam.[6]

Neferine possesses a significant inhibitory effect on amiodarone-induced pulmonary fibrosis, probably due to its properties of anti-inflammation, surfactant protein-D (SP-D) inhibition and restoring increased CD4+CD25+ Tregs which may modulate Th1/Th2 imbalance by suppressing Th2 response (from Th2 polarity toward a Th1 dominant response).[7]

Neferine shows antidepressant-like effects in mice similar to typical antidepressants and

that these effects are mediated by the 5-HT 1A receptor, therefore, the central effects of neferine are likely to be linked to serotonergic neurotransmission.[8]

Neferine exerts strong antioxidant property against isoproterenol-induced oxidative stress and can be used as a potent cardioprotective agent against isoproterenol-induced myocardial infarction.[9]

[Solvent]

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

[HPLC Method][10]

Mobile phase: Methanol- 0.2 M KH2PO4- 0.2 M NaOH- Triethylamine= 71:17:12:0.002, (pH 9.2-9.3) ;

Flow rate: 0.8 ml/min;

Column temperature: Room Temperature;

The wave length of determination: 282 nm.

[Storage]

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

[References]

[1] Jung H A, Jin S R, Kim D H, *et al. Life Sci., 2010, 87(13-14):420-30.*

[2] Poornima P, Weng C F, Padma V V. *Food Chem., 2013, 141(4):3598-605.*

[3] Zhao L, Wang X, Chang Q, *et al. Eur. J. Pharmacol., 2010, 627(1-3):304-12.*

[4] Pan Y, Cai B, Wang K, *et al. J. Ethnopharmacol., 2009, 124(1):98-102.*

[5] Zhang X, Liu Z, Xu B, *et al. Eur. J. Pharmacol., 2012, 677(1-3):47-54.*

[6] Sugimoto Y, Furutani S, Itoh A, *et al. Phytomed. Int. J. Phytother. Phytopharmacol., 2008, 15(12):1117-24.*

[7] Niu C H, Wang Y, Liu J D, *et al. Eur.J. Pharmacol., 2013, 714(1-3):112-19.*

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[9] Lalitha G, Poornima P, Archanah A, *et al. Cardiovasc. Toxicol., 2013, 13(2):168-79.*

[10] Huang Y, Zhao L, Bai Y, *et al. Arzneimittel-Forsch., 2011, 61(6):347-52.*

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