

Piperine Datasheet

4th Edition (Revised in July, 2016)

[Product Information]

Name: Piperine

Catalog No.: CFN99919

Cas No.: 94-62-2

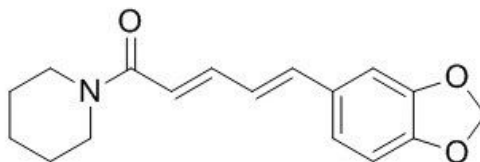
Purity: >=99%

M.F: C₁₇H₁₉NO₃

M.W: 285.34

Physical Description: White powder

Synonyms: N-Piperoylpiperidin; (E,E)-1-[5-(1,3-Benzodioxol-5-yl)-1-oxo-2,4-pentadienyl]-piperidine.



[Intended Use]

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

[Source]

The fruits of *Piper nigrum* L.

[Biological Activity or Inhibitors]

Piperine, a major component of black pepper, inhibits drug-metabolizing enzymes in rodents and increases plasma concentrations of several drugs, including P-glycoprotein substrates (phenytoin and rifampin) in humans, it is an inhibitor of human P-glycoprotein and/or CYP3A4.^[1]

Piperine, a known inhibitor of hepatic and intestinal glucuronidation.^[2]

Piperine and curcumin are cancer preventive compounds .^[3]

Piperine is cytotoxic towards Dalton's lymphoma ascites (DLA) and Ehrlich ascites carcinoma (EAC) cells at a concentration of 250 μ g/ml, piperine (1.14mg/dose/animal) can inhibit the solid tumor development in mice induced with DLA cells;suggests that piperine has immunomodulatory and antitumor activity. ^[4]

Supplementation with black pepper or the active principle of black pepper, piperine, has tissue lipid peroxidation, can reduce high-fat diet induced oxidative stress to the cells.^[5]

Piperine has antidepressant like effects in chronic mild stress treated mice, up-regulation of the progenitor cell proliferation of hippocampus and cytoprotective activity might be mechanisms involved in the antidepressant-like effect of piperine, which may be closely related to the elevation of hippocampal brain-derived neurotrophic factor (BDNF) level.^[6]

Administration of piperine appears to reverse preexisting high-fat diet (HFD)-induced hepatic steatosis and insulin resistance, probably by activation of adiponectin-AMPK signalling in mice. ^[7]

Piperine has anti-inflammatory, antinociceptive, and antiarthritic effects in human interleukin 1 β -stimulated fibroblast-like synoviocytes and in rat arthritis models, thus, piperine should be further studied with regard to use either as a pharmaceutical or as a dietary supplement for the treatment of arthritis.^[8]

Piperine shows a lower hepatoprotective potency than silymarin(a known hepatoprotective drug).^[9]

[Solvent]

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

[HPLC Method]^[10]

Mobile phase: Acetonitrile- H₂O-Acetic acid=60:39.5:0.5;

Flow rate: 1.0 ml/min;

Column temperature: Room Temperature;

The wave length of determination: 340 nm.

[Storage]

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

[References]

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- [2] Shoba G, Joy D, Joseph T, et al.*Planta Med.*, 1998, 64(4):353-6.
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- [4] Sunila E S, Kuttan G. *J. Ethnopharmacol.*, 2004, 90(2–3):339-46.
- [5] Vijayakumar R S, Surya D, Nalini N. *Redox Report Communications in Free Radical Research*, 2013, 9(2):105-10.
- [6] Li S, Wang C, Wang M, et al. *Life Sci.*, 2007, 80(15):1373-81.
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- [9] Koul I B, Kapil A. *Planta Med.*, 1993, 59(5):413-7.
- [10] Upadhyay V, Sharma N, Joshi H M, et al. *International Journal of Herbal Medicine*, 2013,1(4):6-9.

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