

Plumbagin Datasheet

4th Edition (Revised in July, 2016)

[Product Information]

Name: Plumbagin

Catalog No.: CFN90444

Cas No.: 481-42-5

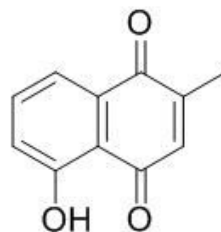
Purity: >=98%

M.F: C₁₁H₈O₃

M.W: 188.18

Physical Description: Powder

Synonyms: 5-Hydroxy-2-methyl-1,4-naphthoquinone.



[Intended Use]

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

[Source]

The herbs of *Plumbago zeylanica* L.

[Biological Activity or Inhibitors]

Plumbagin, derived from the medicinal plant *Plumbago zeylanica*, modulates cellular

proliferation, carcinogenesis, and radioresistance, all known to be regulated by the activation of the transcription factor NF- κ B; plumbagin is a potent inhibitor of the NF- κ B activation pathway that leads to suppression of NF- κ B-regulated gene products, explains that plumbagin's cell growth modulatory, anticarcinogenic, and radiosensitizing effects.^[1]

Plumbagin exhibits effective cell growth inhibition by inducing cancer cells to undergo G2/M phase arrest and apoptosis, plumbagin's inhibition of cell growth effect is also evident in a nude mice model.^[2]

Plumbagin is a novel Nrf2/ARE activator, it has neuroprotective effects, can significantly reduce the amount of brain damage and ameliorate associated neurological deficits in a mouse model of focal ischemic stroke. ^[3]

Plumbagin is a novel inhibitor of the growth and invasion of hormone-refractory prostate cancer.^[4]

Plumbagin exhibits relatively specific activity against bacteria and yeast, the minimum inhibitory concentration test shows the growth inhibition of *Staphylococcus aureus* at a concentration of 1.56 g/ml and of *Candida albicans* at a concentration of 0.78 g/ml., suggests the naphthoquinone plumbagin as a promising antimicrobial agent.^[5]

Plumbagin induces ROS-mediated apoptosis in human promyelocytic leukemia cells in vivo, indicates that plumbagin has potential as a novel therapeutic agent for myeloid leukemia.^[6]

Plumbagin has significant antioxidant abilities.^[7]

Plumbagin has anti-inflammatory effects, mediated by inhibition of NF- κ B activation in lymphocytes; it also has immunomodulatory effects in lymphocytes via modulation of NF- κ B activation.^[8]

Plumbagin can inhibit invasion and migration of breast and gastric cancer cells by downregulating the expression of chemokine receptor CXCR4.^[9]

A combination of plumbagin and radiation can augment cell growth inhibition compared to higher radiation dose alone, thus indicating that plumbagin may be a potential radiosensitizer acting through the induction of apoptosis.^[10]

Plumbagin can inhibit the growth of *Candida albicans* , *Candida glabrata* , *Candida*

krusei , *Candida tropicalis* , *Cryptococcus neoformans* , *Aspergillus niger* , *Aspergillus flavus* , *Alternaria sp.* , *Cladosporium sp.* , *Geotrichum candidum* , *Fusarium sp.* and *Penicillium sp.* , it could be considered as a promising antifungal agent.^[11]

Plumbagin feeding brings about a definite regression of atheroma and prevents the accumulation of cholesterol and triglycerides in liver and aorta.^[12]

Plumbagin has antifertility effects.^[13]

[Solvent]

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

[HPLC Method]^[14]

Mobile phase: 0.1 M Acetic acid-Methanol=33:67 ;

Flow rate: 0.75 ml/min;

Column temperature: 42 °C;

The wave length of determination: 260 nm.

[Storage]

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

[References]

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