Natural Products

ChemFaces

Sulfuretin Datasheet

4th Edition (Revised in July, 2016)

[Product Information]

Name: Sulfuretin

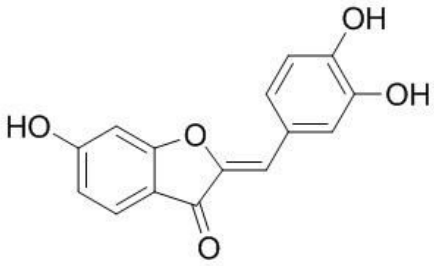
Catalog No.: CFN97844

Cas No.: 120-05-8

Purity: > 95%

M.F: $C_{15}H_{10}O_5$

M.W: 270.24



Physical Description: Yellow powder

Synonyms: (2Z)-2-[(3,4-dihydroxyphenyl)methylidene]-6-hydroxy-1-benzofuran-3-one; 7,3',4'-Trihydroxyaurone;3',4',6-Trihydroxyaurone.

[Intended Use]

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

[Source]

The herbs of *Rhus verniciflua.*

[Biological Activity or Inhibitors]

Rhus verniciflua extract, which contains sulfuretin as an active component, may prevent rheumatoid syndromes by inhibiting reactive oxygen species.[1]

Sulfuretin has anti-inflammatory effect in lipopolysaccharide (LPS)-treated RAW 264.7 macrophages, the effect is associated with the suppression of NF-kappaB transcriptional activity via the inhibitory regulation of IKKbeta phosphorylation.[2]

Sulfuretin can reduce airway inflammatory cell recruitment and peribronchiolar inflammation and suppress the production of various cytokines in bronchoalveolar fluid, it also can suppress mucin production and prevent the development of airway hyper-responsiveness; suggests that sulfuretin may have therapeutic potential for the treatment of allergic airway inflammation, mediated by the inhibition of the NF-κB signaling pathway. [3]

Sulfuretin has protective effect against tert-butyl hydroperoxide (t-BHP)-induced oxidative damage in human liver-derived HepG2 cells, the effect is attributable to its ability to scavenge ROS and up-regulate the activity of HO-1 through the Nrf2/ARE and JNK/ERK signaling pathways.[4]

Sulfuretin-induced miR-30C selectively downregulates cyclin D1 and D2 and triggers cell death in human cancer cell lines.[5]

Sulfuretin is a potent anti-oxidant, it protects SH-SY5Y cells against 6-hydroxydopamine (6-OHDA)-induced neuronal cell death, possibly through inhibition of phosphorylation of MAPK, PI3K/Akt, and GSK-3, which leads to mitochondrial protection, NF-κB modulations and subsequent suppression of apoptosis via ROS-dependent pathways, thus, sulfuretin may have a potential role for neuroprotection and may be used as a therapeutic agent for Parkinson's disease (PD).[6]

Sulfuretin has antinociceptive and antiinflammatory effects, the inhibitory effect of sulfuretin on COX-2 may be one of the antinociceptive/antiinflammatory mechanism.[7]

Sulfuretin can protect against cytokine-induced beta-cell damage and prevent streptozotocin-induced diabetes, the meachnism is mediated by suppression of NF-kappaB activation.[8]

Rhus verniciflua stokes heartwood may have cardiovascular protective activity by inhibiting platelet aggregation, the active constituents are fisetin, butein, and sulfuretin.[9]

Sulfuretin acts through the activation of BMP, mTOR, Wnt/β-catenin, and Runx2 signaling to promote in vitro osteoblast differentiation and facilitate in vivo bone regeneration, and might be have therapeutic benefits in bone disease and regeneration.[10]

Sulfuretin can inhibit UVB-induced MMP-1 and -3 expressions in a dose-dependent manner, UVB-induced MAPK/NF-κB/p50 activation and MMP expression could be completely blocked by pretreatment of sulfuretin, thus, sulfuretin can prevent UVB-induced MMP expressions through inhibition of MAPK/NF-κB/p50 activation.[11]

[Solvent]

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

[HPLC Method][12]

Mobile phase: 2% Acetic acid in water- Methanol ,gradient elution ;

Flow rate: 1.0 ml/min;

Column temperature: 30 ℃;

The wave length of determination: 280 nm.

[Storage]

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

[References]

[1] Choi J, Yoon B J, Han Y N, *et al. Planta Med., 2003, 69(10):899-904.*

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[4] Lee D S, Kim K S, Ko W, *et al. Int. J. Mol. Sci., 2014, 15(5):8863-77.*

[5] Poudel S, Song J, Jin E J, *et al. Biochem. Bioph. Res. Co., 2013, 431(3):572-8.*

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[9] Lee J H, Kim M, Chang K H, *et al. J. Med. Food, 2015, 18(1):21-30.*

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[11] Hong S S, Kim S H, Lee Y R. *J. Physiol.Pathol..2011,25(3):533-9.*

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