Natural Products

ChemFaces

Calycosin Datasheet

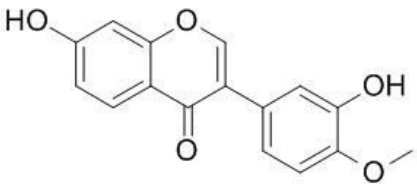
4th Edition (Revised in July, 2016)

[Product Information]

Name: Calycosin

Catalog No.: CFN99140

Cas No.: 20575-57-9



Purity: > 98%

M.F: $C_{16}H_{12}O_5$

M.W: 284.26

Physical Description: Yellow powder

Synonyms: Astraisoflavone;3'-Hydroxyformononetin;3',7-Dihydroxy-4'-methoxyisoflavone;

7-Hydroxy-3-(3-hydroxy-4-methoxyphenyl)-4H-1-benzopyran-4-one.

[Intended Use]

1. Reference standards;
2. Pharmacological research;
3. Food and cosmetic research;
4. Synthetic precursor compounds;
5. Intermediates & Fine Chemicals;
6. Ingredient in supplements, beverages;
7. Aromatics;
8. Others.

[Source]

The herb of *Astragalus membranaceus Bge. var. mongholicus.*

[Biological Activity or Inhibitors]

Calycosin, a major isoflavonoid isolated from Radix Astragal, induces angiogenesis in human umbilical vein endothelial cell cultures (HUVEC) in vitro and zebrafish embryos in vivo via the up-regulation of vascular endothelial growth factor (VEGF), VEGFR1 and VEGFR2 mRNA expression;it acts similar to other selective estrogen receptor modulators (SERMs) to promote angiogenesis via activation of MAPK with the involvement of ERK1/2 and ER. , such as raloxifene and tamoxifen, by displaying selective potency and affinity to estrogen receptors ERa and ERb.[1]

Calycosin has neuroprotective effects in cerebral ischemia/reperfusion rats, and the molecular mechanisms may correlate with the positive feedback between ER-α and miR-375, along with the regulation of downstream targets.[2]

Calycosin inhibits growth and induce apoptosis in ER-positive breast cancer cells, which is mediated by ER-α-induced inhibition of IGF-1R, along with the selective regulation of MAPK and phosphatidylinositol 3-kinase (PI3K)/Akt pathways.[3]

Calycosin can promote proliferation of estrogen receptor-positive cells via estrogen receptors and ERK1/2 activation in vitro and in vivo.[4]

Calycosin can reduce advanced glycation end products-induced macrophage migration and adhesion to endothelial cells and relieve the local inflammation; furthermore, this effect is via estrogen receptor-ERK1/2–NF-κB pathway.[5]

Calycosin is a vasorelaxant, its action is endothelium-independent and is unrelated to intracellular $Ca^{(2+)}$ release; it is also a noncompetitive $Ca^{(2+)}$ channel blocker, the effect of it on $Ca^{(2+)}$ channel blockade may be different from that of dihydropyridines. [6]

[Solvent]

Chloroform, Dichloromethane, Ethyl Acetate, Methanol.

[HPLC Method][7]

Mobile phase: Acetonitrile--0.1% HCOOH in H2O, gradient elution ;

Flow rate: 1.0 ml/min;

Column temperature: 25 ℃;

The wave length of determination: 260 nm.

[Storage]

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

[References]

[1] Tang J Y, Li S, Li Z H, *et al. Plos One, 2010, 5(7): e11822.*

[2] Wang Y, Dong X, Li Z, *et al. J. Neurol. Sci., 2014, 339(2):144-8.*

[3] Chen J, Hou R, Zhang X, *et al. Plos One, 2014, 9(3):e91245.*

[4] Chen J, Liu L, Hou R, *et al. Cancer Lett., 2011, 308(2):144-51.*

[5] Xu Y, Feng L, Wang S, *et al. J. Ethnopharmacol., 2011, 137(1):359-70.*

[6] Xiu L, Wang Y Y, *et al. Acta Pharmacol. Sin., 2006, 27(8):1007–12.*

[7] Wang H, Li Y, Fang L, *et al. J. Pharm. Practice, 2015(01):53-4.*

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