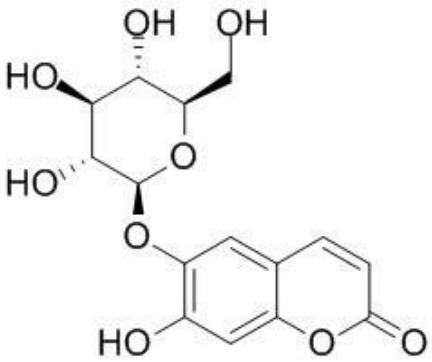
Natural Products

ChemFaces

Esculin Datasheet

4th Edition (Revised in July, 2016)

[Product Information]



Name: Esculin

Catalog No.: CFN99114

Cas No.: 531-75-9

Purity: > 98%

M.F: $C_{15}H_{16}O_9$

M.W: 340.28

Physical Description: White powder

Synonyms:7-Hydroxy-6-[[(2S,3R,4S,5S,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)-2-oxanyl] oxy]-1-benzopyran-2-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 peel of *Aesculus hippocastanum L.*

[Biological Activity or Inhibitors]

Esculin, a plant coumarin compound that occur naturally in dietary plants or when supplemented in the diet probably inhibit the survival of E. coli O157 in the gut.[1]

Esculin has protective effects on dopamine(DA)-induced cytotoxicity in human neuroblastoma SH-SY5Y cells, the effects may be ascribed to its anti-oxidative properties by reducing ROS level, and its anti-apoptotic effect via protecting mitochondrion membrane potential (DeltaPsim), enhancing superoxide dismutaese (SOD) activity and reduced glutathione (GSH) levels, and regulating P53, Bax and Bcl-2 expression; indicates that esculin may provide a useful therapeutic strategy for the treatment of progressive neurodegenerative diseases such as Parkinson's disease (PD).[2]

Esculin has a protective effect on lipopolysaccharide (LPS)-induced acute lung injury (ALI) in mice, it can inhibit the Toll-like receptor-2 (TLR2), Toll-like receptor-4 (TLR4), myeloid differentiation primary response gene-88 (MyD88), and nuclear factor-κB (NF-κB) p65 in LPS-induced ALI. [3]

Esculin has an inhibitory effect on DMH-induced oxidative DNA damage and carcinogenesis in rat colons.[4]

The traditional use of Fraxinus ornus stem bark extracts in the treatment of inflammatory disorders is at least partially due to its coumarin constituents, esculin.[5]

The use of Esculin Glycerol Agar (EGA) solid medium shows that the screening method is suitable for exploring the glucosidase activity of native strains of S. cerevisiae and shows good correlation with its real impact on free aroma compounds in the final wine.[6]

[Solvent]

Pyridine, DMSO, Ethanol, Methanol.

[HPLC Method][7]

Mobile phase: Acetonitrile : 0.1% Phosphoric acid H2O=12:88;

Flow rate: 1.0 ml/min;

Column temperature: 30 ℃;

The wave length of determination: 334 nm.

[Storage]

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

[References]

[1] Duncan S H, Leitch E C, Stanley K N, *et al. Brit. J. Nutr., 2004, 91(5):749-55.*

[2] Zhao D L, Zou L B, Lin S, *et al. Neuropharmacology, 2007, 53(6):724-32.*

[3] Zhang T, Wang S. *Inflammation., 2015, 38(4):1529-36.*

[4] Kaneko T, Tahara S, Takabayashi F. *Biol. Pharm. Bull., 2007, 30(11):2052-7.*

[5] Stefanova Z, Neychev H, Ivanovska N, *et al. J. Ethnopharmacol., 1995, 46(2):101-6.*

[6] Pérez G, Fariña L, Barquet M, *et al. World J. Microb .Biot., 2011, 27(1):47-55.*

[7] Zhao B Q, He Q, Teng J X, *et al. Chinese pharmacy, 2010 (7): 626-8.*

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