

# Icariin Datasheet

4<sup>th</sup> Edition (Revised in July, 2016)

## [ Product Information ]

**Name:** Icariin

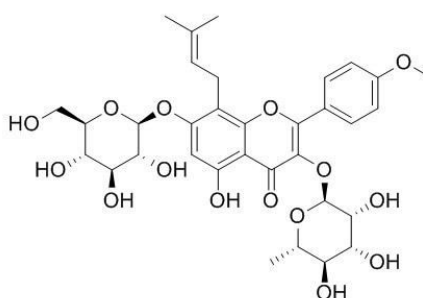
**Catalog No.:** CFN99554

**Cas No.:** 489-32-7

**Purity:** > 98%

**M.F:** C<sub>33</sub>H<sub>40</sub>O<sub>15</sub>

**M.W:** 676.65



**Physical Description:** Yellow powder

**Synonyms:** Icariine; Icariline; Epimedium;

3-[(6-Deoxy-alpha-L-mannopyranosyl)oxy]-7-(beta-D-glucopyranosyloxy)-5-hydroxy-2-(4-methoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyran-4-one;

2,6-anhydro-1-deoxy-7-O-[7-(beta-D-glucopyranosyloxy)-2-(4-methoxyphenyl)-8-(3-methylbut-2-en-1-yl)-4-oxo-4H-chromen-3-yl]-L-glycero-L-manno-heptitol.

## [ Intended Use ]

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

## [ Source ]

The herbs of *Epimedium grandiflorum*.

## **[ Biological Activity or Inhibitors ]**

Icariin, the main active compound of *Epimedium pubescens*, exerts its potent osteogenic effect through induction of Runx2 expression, production of BMP-4 and activation of BMP signaling, it has antiosteoporotic activity in ovariectomized rats. <sup>[1,2]</sup>

Icariin pretreatment can reduce the nucleus transportation and constant level of NF- $\kappa$ B p65 in the RAW 264.7 macrophage cells, the protective effects of icariin were reversed by a PI3K/Akt inhibitor (wortmannin), suggests that the activation of the PI3K/Akt pathway and the inhibition of NF- $\kappa$ B are involved in the protective effects of icariin on LPS-induced acute inflammatory responses. <sup>[3]</sup>

Icariin has protective effects against oxidative injuries of ECV-304 cells, it may be achieved via decreasing of caspase expression. <sup>[4]</sup>

Icariin can protect endothelial cells (ECV-304) from Ang II-induced injury. <sup>[5]</sup>

Icariin possesses potent antidepressant-like properties that are mediated via neurochemical and neuroendocrine systems. <sup>[6]</sup>

Icariin is a safe anabolic agent of chondrocytes, it may exert its protective effects through inhibition of nitric oxide and MMP synthesis, and may then reduce the extracellular matrix destruction. <sup>[7]</sup>

Pretreatment with icariin can decrease neurological deficit score, diminish the infarct volume, and reduce the protein levels of IL-1 $\beta$  and TGF- $\beta$ 1, it suppresses I $\kappa$ B- $\alpha$  degradation and NF- $\kappa$ B activation induced by I/R, it also up-regulates PPAR $\alpha$  and PPAR $\gamma$  protein levels, suggests that icariin has neuroprotective effect on ischemic stroke in rats through inhibition of inflammatory responses mediated by NF- $\kappa$ B and PPAR $\alpha$  and PPAR $\gamma$ . <sup>[8]</sup>

## **[ Solvent ]**

Pyridine, Methanol, Ethanol, etc.

## **[ HPLC Method ]<sup>[9]</sup>**

Mobile phase: Acetonitrile- H<sub>2</sub>O-Acetic acid=31:69:0.4;

Flow rate: 1.0 ml/min;

Column temperature: Room Temperature;

The wave length of determination: 277 nm.

## **[ Storage ]**

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

## **[ References ]**

- [1] Zhao J, Ohba S, Shinkai M, *et al. Biochem. Bioph. Res. Co.*, 2008, 369(2):444-8.
- [2] Nian H, Ma M H, Nian S S, *et al. Phytomed. Int. J. Phytother. Phytopharmacol.*, 2009, 16(4):320-6.
- [3] Xu C Q, Liu B J, Wu J F, *et al. Eur. J. Pharmacol.* 2010, 642(1-3):146-53.
- [4] Wang Y K, Huang Z Q. *Pharmacol. Res.*, 2005, 52(2):174-82.
- [5] Wang Q J, Pan Z W, Wang Y, *et al. Journal of Chinese Pharmaceutical Sciences*, 2008, 17(1):16-21.
- [6] Pan Y, Kong L, Xia X, *et al. Pharmacol. Biochem. Be.*, 2005, 82(4):686-94.
- [7] Liu M H, Sun J S, Tsai S W, *et al. Nutr. Res.*, 2010, 30(1):57-65.
- [8] Xiong D, Deng Y, Huang B, *et al. Int. Immunopharmacol.* 2016, 30:157-62.
- [9] Shan C, Feng Q, Wang S, *et al. J. Sep. Sci.*, 2007, 30(9):1307-12.

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