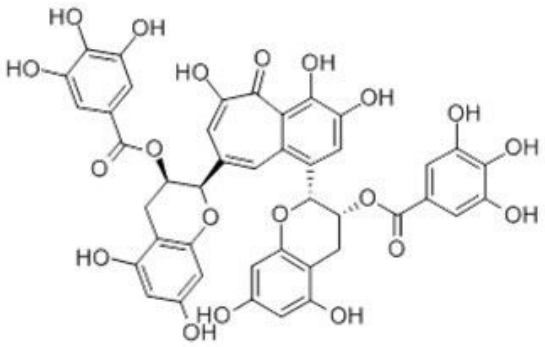
Natural Products

ChemFaces

Theaflavin 3,3'-di-O-gallate Datasheet

4th Edition (Revised in July, 2016)

[Product Information]



Name: Theaflavin 3,3'-di-O-gallate

Catalog No.: CFN99130

Cas No.: 30462-35-2

Purity: > 98%

M.F: $C_{43}H_{32}O_{20}$

M.W: 868.70

Physical Description: Powder

Synonyms:3,4,6-Trihydroxy-1,8-bis[[(2R)-3,4-dihydro-5,7-dihydroxy-3α-(3,4,5-trihydroxy benzoyloxy)-2H-1-benzopyran]-2α-yl]-5H-benzocycloheptene-5-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. Others.

[Source]

The leaves of *Black tea.*

[Biological Activity or Inhibitors]

Theaflavin-3,3'-digallate (TF-3), a polyphenol in black tea, an inducer of oxidative stress and apoptosis, shows a concentration and time dependent inhibition of growth, with the tumor cells more sensitive than the fibroblasts. [1]

Theaflavin-3,3'-digallate strongly inhibits both IKK1 and IKK2 activity and prevents the degradation of IκBα and IκBβ in activated macrophage cells; the inhibition of IKK activity by TF-3 could occur by a direct effect on IKKs or on upstream events in the signal transduction pathway; suggests that TF-3 may exert its anti-inflammatory and cancer chemopreventive actions by suppressing the activation of NFκB through inhibition of IKK activity.[2]

Theaflavin-3,3'-digallate has potent anti-inflammation activity, can decrease the protein levels of inducible NO synthase by reducing the expression of inducible NO synthase mRNA, and the reduction could be via preventing the activation of NF-kappaB, thereby inhibiting the induction of inducible NO synthase transcription.[3]

Theaflavin-3,3'-digallate induces epidermal growth factor receptor (EGFR) endocytosis and degradation, it stimulates EGFR ubiquitination and tyrosine kinase activation; indicates that TF-3 mayt exert chemopreventive effects through the downregulation of the EGFR.[4]

Theaflavin-3,3'-digallate and lactic acid combinations can reduce Herpes Simplex Virus(HSV) infectivity.[5]

Theaflavin-3,3'-digallate has anticancer properties, TF3 reduces tumor angiogenesis by downregulating HIF-1αand VEGF; suggests that TF3 might serve as a potential anti-angiogenic agent for cancer treatment.[6]

[Solvent]

Pyridine, DMSO, Ethanol, Methanol, hot water.

[HPLC Method][7]

Mobile phase: Acetonitrile- 50mM Phosphoric acid H2O, gradient eiution;

Flow rate: 0.8 ml/min;

Column temperature: 35 ℃;

The wave length of determination: 280 nm.

[Storage]

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

[References]

[1] Pan M H, Lin-Shiau S Y, Ho C T, *et al. Biochem. Pharmacol., 2000, 59(4):357-67.*

[2] Lin Y L, Tsai S H, Lin-Shiau S Y, *et al. Eur. J. Pharmacol., 1999, 367(2-3):379-88.*

[3] Schuck A G, Ausubel M B, Zuckerbraun H L, *et al. Toxicol. Vitro An Int. J. Pub. Assoc Bibra, 2008, 22(3):598-609.*

[4] Mizuno H, Cho Y, Zhu F, *et al. Mol. Carcinogen., 2006, 45(3):204-12.*

[5] Isaacs C E, Xu W. *Antimicrob. Agents Chemoth., 2013, 57(8):3806-14.*

[6] Gao Y, Rankin G O, Tu Y, *et al. Int. J. Oncol., 2016, 48(1):281-92.*

[7] Xue J, Jiang H, Dan L, *et al. Journal of Chinese Institute of Food Science & Technology, 2014, 14(5):237-43.*

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