

## Theaflavin Datasheet

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

### [ Product Information ]

**Name:** Theaflavin

**Catalog No.:** CFN98597

**Cas No.:** 4670-05-7

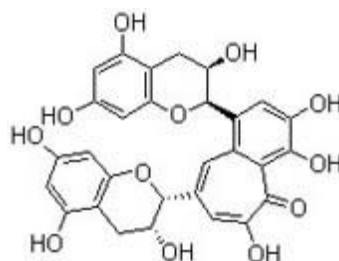
**Purity:** > 98%

**M.F:** C<sub>29</sub>H<sub>24</sub>O<sub>12</sub>

**M.W:** 564.49

**Physical Description:** Powder

**Synonyms:** 3,4,6-Trihydroxy-1,8-bis(3 $\alpha$ ,5,7-trihydroxy-2 $\alpha$ -chromanyl)-5H-benzocyclohepten-5-one; 3,4,5-trihydroxy-1,8-bis[(2R,3R)-3,5,7-trihydroxychroman-2-yl]benzocyclohepten-6-one.



### [ Intended Use ]

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

## **[ Source ]**

The leaves of *Camellia sinensis* (L.) O. Kuntze.

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

Theaflavin(TF) has antioxidant activity, the TF present in black tea possess at least the same antioxidant potency as catechins present in green tea, and that the conversion of catechins to TF during fermentation in making black tea does not alter significantly their free radical-scavenging activity.<sup>[1,2]</sup>

Theaflavin significantly reduces lipid accumulation, suppressed fatty acid synthesis, and stimulate fatty acid oxidation, also inhibits acetyl-coenzyme A carboxylase activities by stimulating AMP-activated protein kinase (AMPK) through the LKB1 and reactive oxygen species pathways; it is bioavailable both in vitro and in vivo and may be active in the prevention of fatty liver and obesity.<sup>[3]</sup>

Theaflavin induces G2/M arrest by modulating expression of p21 waf1/cip1 , cdc25C and cyclin B in human prostate carcinoma PC-3 cells, it acts as an effective anti-proliferative agent by modulating cell growth regulators in prostate cancer cells.<sup>[4]</sup>

Theaflavins from Black Tea, have inhibition of ultraviolet B—and induces AP - 1 activation.<sup>[5]</sup>

Theaflavin inhibits 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)-induced lung tumorigenesis in A/J mice.<sup>[6]</sup>

Theaflavins and thearubigins have antimutagenic effects in Ames Salmonella assays.<sup>[7]</sup>

## **[ Solvent ]**

Pyridine, DMSO, Ethanol, Methanol, Water.

## **[ HPLC Method ]<sup>[8]</sup>**

Mobile phase: Methanol-H<sub>2</sub>O gradient elution;

Flow rate: 1.0 ml/min;

Column temperature: 30 °C;

The wave length of determination: 270 nm.

## **[ Storage ]**

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

## **[ References ]**

- [1] Leung L K, Su Y, Chen R, *et al. J. Nutr.*, 2001, 131(9):2248-51.
- [2] Lin C L, Huang H C, Lin J K. *J. Lipid Res.*, 2007, 48(11):2334-43.
- [3] Masaaki N, Ma W, Huang C, *et al. Mol. Carcinogen.*, 2000, 28:148-55.
- [4] Prasad S, Kaur J, Roy P, *et al. Life Sci.*, 2007, 81(17-18):1323-31.
- [5] Yang G Y, Liu Z, Seril D N, *et al. Carcinogenesis*, 1997, 18(12):2361-5.
- [7] Gupta S, Chaudhuri T, Seth P, *et al. Phytother. Res.*, 2002, 16(7):655-61.
- [8] Kim S Y, Kozukue N, Han J S, *et al. 한국식품과학회지 제 38 권 제 1 호*, 2006, 38(1):5-9.

## **[ Contact ]**

### **Address:**

S5-3 Building, No. 111, Dongfeng Rd.,  
Wuhan Economic and Technological Development Zone,  
Wuhan, Hubei 430056,  
China

**Email:** info@chemfaces.com

**Tel:** +86-27-84237783

**Fax:** +86-27-84254680

**Web:** [www.chemfaces.com](http://www.chemfaces.com)

**Tech Support:** service@chemfaces.com