

# Sesamin Datasheet

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

## [ Product Information ]

**Name:** Sesamin

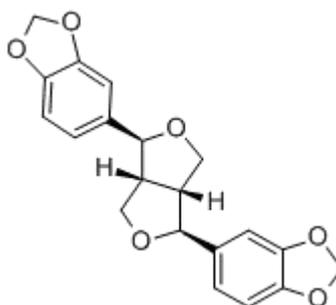
**Catalog No.:** CFN97034

**Cas No.:** 607-80-7

**Purity:** >=98%

**M.F:** C<sub>20</sub>H<sub>18</sub>O<sub>6</sub>

**M.W:** 354.35



**Physical Description:** Powder

**Synonyms:** 1,3-Benzodioxole,5,5'-(tetrahydro-1H,3H-furo[3,4-c]furan-1,4-diyl)bis-, [1S-(1a,3aa,4a,6aa)]-; 1H,3H-Furo[3,4-c]furan, tetrahydro-1,4-bis[3,4-(methylenedioxy)phenyl]-, (1S,3aR,4S,6aR)- (8CI); 1H,3H-Furo[3,4-c]furan, 1,3-benzodioxole deriv.; d-Sesamin; (+)-Sesamin; 5,5'-(Tetrahydro-1H,3H-furo[3,4-c]furan-1,4-diyl)bis-1,3-benzodioxole; Fagarol; Tetrahydro-1,4-bis[3,4-(methylenedioxy)phenyl]-1H,3H-furo[3,4-c]furan.

## [ Intended Use ]

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

## [ **Source** ]

The seeds of *Sesamum indicum*.

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

Sesamin, a lignan from sesame oil, sesamin feeding inhibits enhanced vascular O<sup>2</sup>-production in DOCA-salt hypertensive rats and that the antioxidative action of sesamin may contribute to its antihypertensive activity.<sup>[1]</sup>

Sesamin has antioxidative activity, it protects  $\beta$ -cells from damage caused by Advanced glycation end products (AGEs) through suppressing NADPH oxidase-mediated oxidative stress.<sup>[2]</sup>

Sesamin causes elevation of tissue tocopherol concentration in rats, strongly inhibits tocopherol metabolism by HepG2/C3A cells at 1.0 microM, the results support a CYP3A-dependent mechanism of side chain metabolism of tocopherols to water-soluble carboxychromans, and provide the first evidence of a specific enzyme involved in vitamin E metabolism, suggests that sesamin increases tissue tocopherol concentration by inhibiting tocopherol catabolism. <sup>[3]</sup>

Chronic ingestion of vitamin E and sesamin attenuate both elevation in blood pressure, oxidative stress and thrombotic tendency, suggesting that these treatments might be beneficial in the prevention of hypertension and stroke.<sup>[4]</sup>

Sesamin is a potent and specific inhibitor of delta 5 desaturase in polyunsaturated fatty acid biosynthesis.<sup>[5]</sup>

Sesamin has anti-inflammatory properties, it attenuates intercellular cell adhesion molecule-1 expression in vitro in TNF- $\alpha$ -treated human aortic endothelial cells and in vivo in apolipoprotein-E-deficient mice, suggests that it may prevent the development of atherosclerosis and inflammatory responses.<sup>[6]</sup>

Sesamin induces significant neuroprotection, by ameliorating many signaling pathways activated/deactivated following cerebral ischemia in adult mouse.<sup>[7]</sup>

Sesamin, at the level of 100 mg/kg body weight, can prevent liver lipid accumulation by carbon tetrachloride in mice, indicates that sesamin and a related lignan compound have

an ability to improve liver function.<sup>[8]</sup>

Sesamin possesses antihypertensive, cholesterol-lowering, lipid-lowering and anticancer activities, it can down-regulate cyclin D1 protein expression through the activation of proteasome degradation, the effect could be one of the mechanisms of the antiproliferative activity of this agent.<sup>[9]</sup>

## **[ Solvent ]**

Chloroform, Dichloromethane, Ethyl Acetate, DMSO, Acetone, etc.

## **[ HPLC Method ]<sup>[10]</sup>**

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

Flow rate: 0.8 ml/min;

Column temperature: Room Temperature;

The wave length of determination: 290 nm.

## **[ Storage ]**

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

## **[ References ]**

- [1] Nakano D, Itoh C, Takaoka M, *et al. Biol. Pharmaceut. Bull.*, 2002, 25(9):1247-9.
- [2] Kong X, Wang GD, Ma MZ, *et al. Nutrients*, 2015, 7(6):4689-704.
- [3] Parker R S, Sontag T J, Swanson J E. *Biochem. Bioph. Res. Co.*, 2000, 277(3):531-4.
- [4] Noguchi T, Ikeda K, Sasaki Y, *et al. Hypertens. Res.*, 2004, 24(6):735-42.
- [5] Shimizu S, Akimoto K, Shinmen Y, *et al. Lipids*, 1991, 26(7):512-6.
- [6] Wu W, Wang S, Kuan I, *et al. Mol. Nutr. Food Res.*, 2010, 54(9):1340-50.
- [7] Ahmad S, Elsherbiny N M, Haque R, *et al. Neurotoxicology*, 2014, 45:100-10.
- [8] Akimoto K, Kitagawa Y, Akamatsu T, *et al. Ann. Nutr. Metab.*, 1993, 37(4):218-24.
- [9] Tomoya Yokota , Youichirou Matsuzaki , Koyama M, *et al. Cancer Sci.*, 2007,

98(9):1447-53.

[10] Wang L, Zhang Y, Li P, *et al.* *J. Am. Oil Chem. Soc.*, 2012, 89(6):1011-20.

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