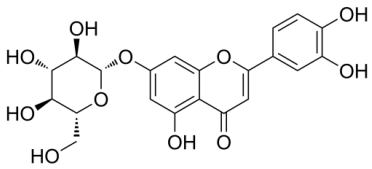
Data Sheet

Product Name:	Cynaroside
Cat. No.:	CS-5712
CAS No.:	5373-11-5
Molecular Formula:	$C_{21}H_{20}O_{11}$
Molecular Weight:	448.38
Target:	Apoptosis; Bacterial; DNA/RNA Synthesis; Fungal; Influenza Virus; Parasite
Pathway:	Anti-infection; Apoptosis; Cell Cycle/DNA Damage
Solubility:	DMSO : 83.33 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

Cynaroside (Luteolin 7-glucoside) is a flavonoid compound that exhibits anti-oxidative capabilities. Cynaroside is also a potent influenza RNA-dependent **RNA polymerase** inhibitor with an **IC_{50}** of 32 nM. Cynaroside also is a promising inhibitor for H_2O_2-induced apoptosis, has cytoprotection against oxidative stress-induced cardiovascular diseases. Cynaroside also has antibacterial, antifungal and anticancer activities, antioxidant and anti-inflammatory activities[1][3][4][5]. IC50 & Target:IC50:32 nM (RNA polymerase inhibitor)[2] ***In Vitro:***Cynaroside promots macrophage phenotypic transition from pro-inflammatory M1 to anti-inflammatory M2, and mitigates sepsis-associated liver inflammatory damage.

Cynaroside reduces binding of PKM2 to hypoxia-inducible factor-1α (HIF-1α) by abolishing translocation of PKM2 to the nucleus and promoting PKM2 tetramer formation, as well as suppressing phosphorylation of PKM2 at Y105 in vivo and in vitro.

Cynaroside restores pyruvate kinase activity, inhibits glycolysis-related proteins including PFKFB3, HK2 and HIF-1α, and inhibits glycolysisrelated hyperacetylation of HMGB1 in septic liver.

Cynaroside protects H9c2 cells against H_2O_2-induced apoptosis by decreasing ROS generation and inhibiting caspase activation in both the mitochondrial and death receptor pathways.

Cynaroside maintains mitochondrial function by regulating Bcl-2 protein expression, as well as JNK and P53 expression[2][3]. ***In Vivo:*** Cynaroside (i.p.; 5 mg/kg) reduces binding of PKM2 to hypoxia-inducible factor-1α (HIF-1α) by abolishing translocation of PKM2 to the nucleus and promoting PKM2 tetramer formation, as well as suppressing phosphorylation of PKM2 at Y105[2].

References:

[1]. Václav Zima, et al. Unraveling the Anti-Influenza Effect of Flavonoids: Experimental Validation of Luteolin and its Congeners as Potent Influenza Endonuclease Inhibitors. Eur J Med Chem. 22 August 2020, 112754.

[2]. Liuhua Pei, et al. Cynaroside prevents macrophage polarization into pro-inflammatory phenotype and alleviates cecal ligation and puncture-induced liver injury by targeting PKM2/HIF-1α axis. Fitoterapia. 2021 Jul;152:104922.

[3]. Xiao Sun, et al. Protective effects of cynaroside against H_2O_2-induced apoptosis in H9c2 cardiomyoblasts. J Cell Biochem. 2011 Aug;112(8):2019-29.

[4]. Shams Tabrez, et al. Cynaroside inhibits Leishmania donovani UDP-galactopyranose mutase and induces reactive oxygen species to exert antileishmanial response. Biosci Rep. 2021 Jan 29;41(1):BSR20203857.

CAIndexNames:

4H-1-Benzopyran-4-one, 2-(3,4-dihydroxyphenyl)-7-(β-D-glucopyranosyloxy)-5-hydroxy-

SMILES:

O=C(C=C(C1=CC(O)=C(O)C=C1)OC2=CC(O[C@@H]([C@@H]([C@@H](O)[C@@H]3O)O)O[C@@H]3CO)=C4)C2=C4O

Caution: Product has not been fully validated for medical applications. For research use only.

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