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Betanin (Red Beet extract diluted with Dextrin)

Catalog No: tcsc046867

Available Sizes

Size: 1g

Size: 5g

Size: 10g

Specifications

CAS No:
7659-95-2

Formula:
$C_{24}H_{26}N_2O_{13}$

Solubility:
H2O : 150 mg/mL (272.49 mM; Need ultrasonic)

Observed Molecular Weight:
550.47

Product Description

Activity:

Betanin has potent antioxidant and anti-inflammatory effect, that could inhibit peroxynitrite (ONOO-), with an IC50 of 19.2 μM. Betanin is a red glycoside obtained from beets that can be used as colorant. IC50 & Target: IC50: 19.2 μM (ONOO-)[1]. In Vitro: Betanin is a representative constituent of red beetroot betacyanins, could inhibit peroxynitrite (ONOO-), with an IC50 of 19.2 μM[1]. Betanin also has anti-inflammatory, anti-proliferative effects, nephroprotective activity, cardioprotective activity, strong, antioxidant and angiotensin converting enzyme (ACE) inhibitory activity[2]. Another study is also indicated the protective effect of Betanin against high glucose induced rat renal epithelial cell fibrosis and matrix accumulation, major features of diabetic nephropathy (DN)[2]. In Vivo: Betanin can inhibit the fructose-induced diabetic cardiac fibrosis and paraquat induced acute kidney toxicity[2]. The co-administration of Betanin (20 mg/kg b.w.) to diabetic rats prevent significantly the raise of glucose level and also reverse the levels of insulin compared with untreated diabetic rats. Interestingly diabetic rats treated with Betanin (20 mg/kg b.w.) and glibenclamide portray the significant changes in the body weight compared to diabetic control. HbA1c levels significantly increases

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in diabetic rats and when treated with Betanin as well as glibenclamide. Treatment with Betanin as well as glibenlamide to STZ-NA induces diabetic rat’s elicit significant decreases in those levels when compared with diabetic control rats[3].

Protocol:

Animal Administration: [3]Rats[3]

Healthy adult Male albino Wistar strain (Rattus norvegicus, 90-120 days of age) are used in the current study. After the successful induction of experimental diabetes, the rats are divided into four groups each comprising a minimum of six rats a total of 30 rats (18 diabetic surviving rats, 12 normal rats). Betanin is administered via oral intubation to the experimental rats using a gavage needle daily for a period of 30 days. Group 1: Normal Control rats. Group 2: Rats treated with Betanin (20 mg/kg b.w.) alone. Group 3: Diabetic Control rats. Group 4: Rats treated with STZ-NA by i.p. and Betanin (20 mg/kg b.w.). Group 5: Rats treated with STZ-NA by i.p. and glibenclamide (600 µg/kg b.w.)[3].

References:

[1]Sakihama Y, et al. Beetroot betalain inhibits peroxynitrite-mediated tyrosine nitration and DNA strand cleavage. Free Radic Res. 2012 Jan;46(1):93-9.

[2]Indumathi D, et al. Betanin exhibits significant potential as an antihyperglycemic and attenuating the glycoprotein components in streptozotocin-nicotinamide-induced experimental rats. Toxicol Mech Methods. 2018 Sep;28(7):547-554.

[3]Sutariya B, et al. Betanin, isolated from fruits of Opuntia elatior Mill attenuates renal fibrosis in diabetic rats through regulating oxidative stress and TGF-β pathway. J Ethnopharmacol. 2017 Feb 23;198:432-443.