Grape Seed proanthocyanidins Attenuate Anxiety- Like Behaviors in Experimental Model of Dietary –Induced Hypercholesterolemia in Rats

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Abstract

Objective: Grape seed proanthocyanidins have shown many health protective effects. The present work aimed to assess its possible anxiolytic effect in dietary-induced hypercholesterolemia in rats.

Methods: 30 Male Wistar rats were divided into 3 groups (n=10); control (normal chow), high cholesterol (cholesterol and cholic acid chow) and high cholesterol + grape seed extract (hypercholesterolemic chow + grape seed extract 100 mg/kg body weight/day). After 4 months, total cholesterol level and animals' behavior in the open field and elevated plus maze were assessed.

Results: High cholesterol diet elevated cholesterol level ($P< 0.001$ versus control group), however grape seed administration ameliorated this elevation ($P< 0.001$ versus high cholesterol untreated group).

In the open field, hypercholesterolemic rats showed increased periods of immobility (138 ± 20.3 seconds (s) versus 96.9 ± 14.5 in control rats $p < 0.001$) and time latency to enter field center (109 ± 18.3 s compared to 40.8 ± 10.5 s in control group $p < 0.001$). Both parameters were reduced by grape seed treatment ($P < 0.01$, $p < 0.001$ versus untreated hypercholesterolemic group respectively).

Elevated plus maze testing demonstrated higher closed arm entries (5.5 ± 1.1 in hypercholesterolemic animals versus 3 ± 1.1 in control group $p < 0.001$) and lower % time spent in open arms (19.7 ± 3.5 versus 35.8 ± 4.8 in control rats $p < 0.001$). Grape seed significantly enhanced the percentage of time spent in open arms ($p < 0.001$ compared to hypercholesterolemic rats).

Conclusion: The present results highlighted the possible anxiolytic effect of grape seed proanthocyanidins in dietary induced-hypercholesterolemia.

Recent Publications:

1.Effect of integrating research skills with basic sciences in an interdisciplinary integrated endocrine module on students' satisfaction. Arefaie Z, Aldeek B, Ayoub N. Indian Journal of Pharmaceutical Education and Research. 2017 51 (1): 14-19

2.Grape Seed Proanthocyanidins Attentuate Anxiety-Like Behavior in an Experimental Model of Dietary-Induced Hypercholesterolemia in Rats. Alrefaie Z. Int J Vitam Nutr Res. 2016 14:1-10.

3.Effect of vitamin D3 on thyroid function and de-iodinase 2 expression in diabetic rats. Alrefaie Z, Awad H. Arch Physiol Biochem. 2015;121(5):206-9.

4.Vitamin D_3 improves decline in cognitive function and cholinergic transmission in prefrontal cortex of streptozotocin-induced diabetic rats. Alrefaie Z, Alhayani A. Behav Brain Res. 2015;287:156-62. An evidence for the transcriptional regulation of iodothyronine deiodinase 2 by progesterone

5.An evidence for the transcriptional regulation of iodothyronine deiodinase 2 by progesterone in ovarectomized rats. Awad HA, Alrefaie ZA. J Physiol Biochem. 2014 Jun;70(2):331-9.



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Biography

Alrefaie Zienab, Interested in investigating the pathophysiologic mechanisms underlying cognitive and emotional disorders associating diabetes mellitus, obesity and metabolic syndrome in addition to studying the possible protective effects of certain natural remedies.

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