

In The Name Of Allah



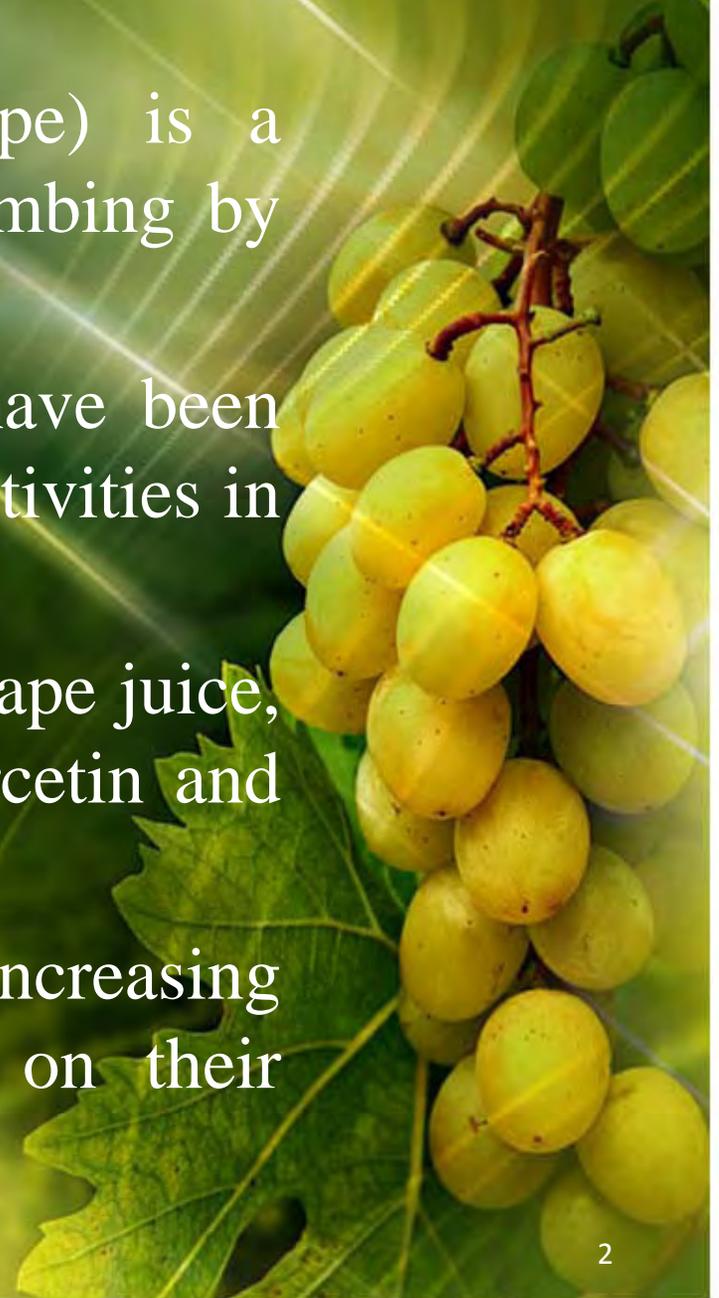
**The effect of grape (Askari)
juice on plasma lipid profile in
male rats**

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Introduction

- ❖ *Vitis vinifera* L. (Vitaceae) (grape) is a perennial, woody vine, usually climbing by tendrils.
- ❖ The different parts of this plant have been used because of many biological activities in traditional medicine.
- ❖ Many of the flavonoids found in grape juice, such as catechin, epicatechin, quercetin and anthocyanins.
- ❖ Phenolic-rich foods have received increasing attention due to recent findings on their association with disease prevention.



Introduction

- ❖ Some researches have demonstrated that red grape juice ingestion results in increased serum antioxidant capacity and protection of LDL against oxidation.
- ❖ Therefore, the present study is the effect of grape juice on plasma lipid profile (Total Cholesterol (TC), Triglyceride(TG), LDL and HDL) in male rats.





Material and methods

Grape juice preparation

- ❧ Grape (Askari), the kind of grape that is seedless, juicy and thin skinned, was bought from a local super market in Ahwaz-Iran as *Vitis vinifera*.
- ❧ The grapes were washed gently...
- ❧ Berries were removed from the clusters and kept in thin textile ,then pressure it to extract that juice,



Material and methods

Grape juice preparation

- ☺ Then centrifuged it and bring out the upper solution, then for achieve to high concentrated kept it into the low hot oven,
- ☺ After that for calculated of this density used Picnometer (5ml).
- ☺ At the end, concentrated juice was stored at 4 °C until be used.



Material and methods

Experimental Animals

- Twenty colony adult and healthy male albino rats of Wistar strain (200-250g) from Ahvaz Jundishapur University of Medical Sciences (AJUMS) animal facility were used in this study.
- At 20-25 °C and 12-h light:12-h dark.
- They were fed pelleted standard rat feed and allowed free access to water *ad libitum*.
- The rats were allowed to acclimatize in the laboratory for a period of one week before the beginning of the study.



Material and methods

Treatment protocol

- ◆ Animals were divided into **four** separated groups of five.
- ◆ One group as a sham, three groups for different doses of grape juice as follows:
 - 1) Sham group: only received **1ml** Normal saline with feeding needle (Gavage).
 - 2) Experimental group I: **100** mg/kg B.W orally with feeding needle (Gavage)
 - 3) Experimental group II: **200** mg/kg B.W orally with gavage
 - 4) Experimental group III: **400** mg/kg B.W orally with gavage



Material and methods

Treatment protocol

- ❧ Twenty-four hours after last drug administration, rats in each group were anaesthetized with ketamine and xylazine.
- ❧ Then blood samples were collected by cardiac puncture
- ❧ 2 mL was transferred to a tube with EDTA
- ❧ Plasma was isolated from blood collected in EDTA and stored at -90°C until analysis.
- ❧ Total cholesterol, HDL, LDL and triglycerides were measured with commercial enzyme kits (Zeist Chem).



Material and methods

Statistical analysis

- ✧ In order to determine the differences between experimental and control groups, the results were analyzed by the one way analysis variance (ANOVA), LSD with SPSS v.17 programme.
- ✧ Data are expressed as mean±standard deviation of mean
- ✧ And the results were considered significant at the $p \leq 0.05$ level.



Results

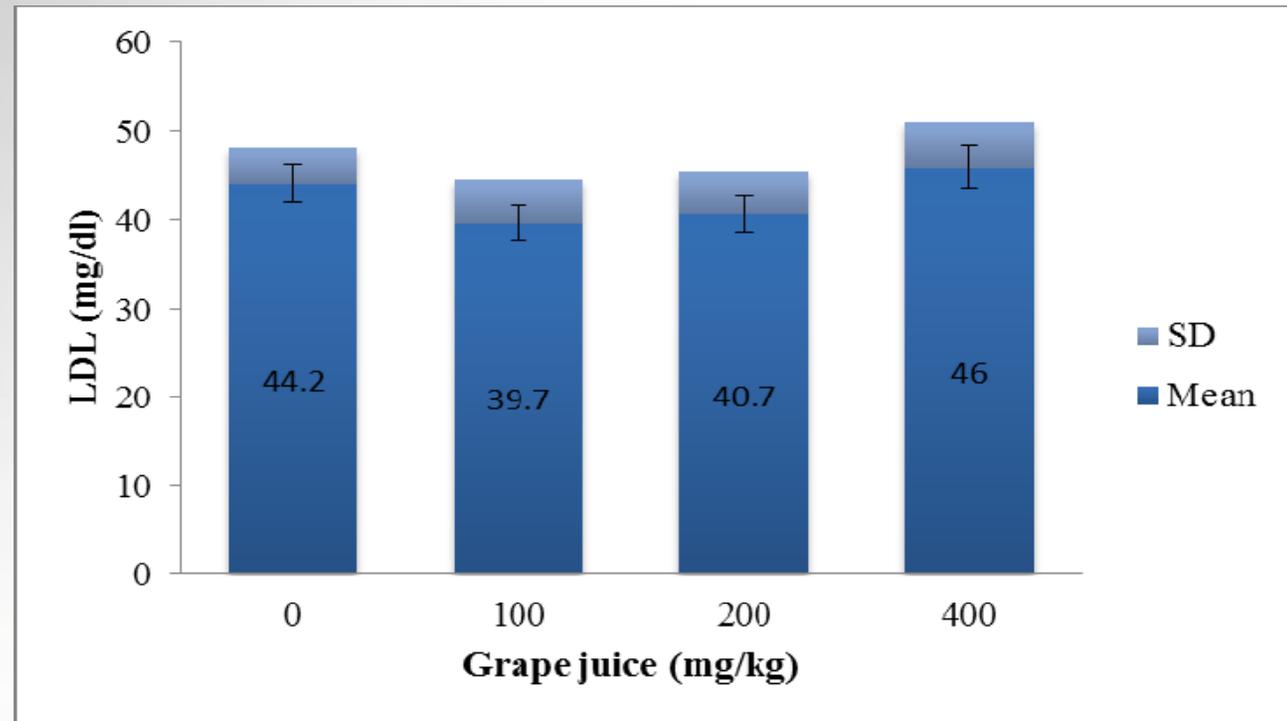


Figure 1- Effect of grape (*Vitis vinifera*) juice on LDL in plasma of rats. There were no significant differences between sham and treatment groups on LDL in plasma of experimental animals.



Results

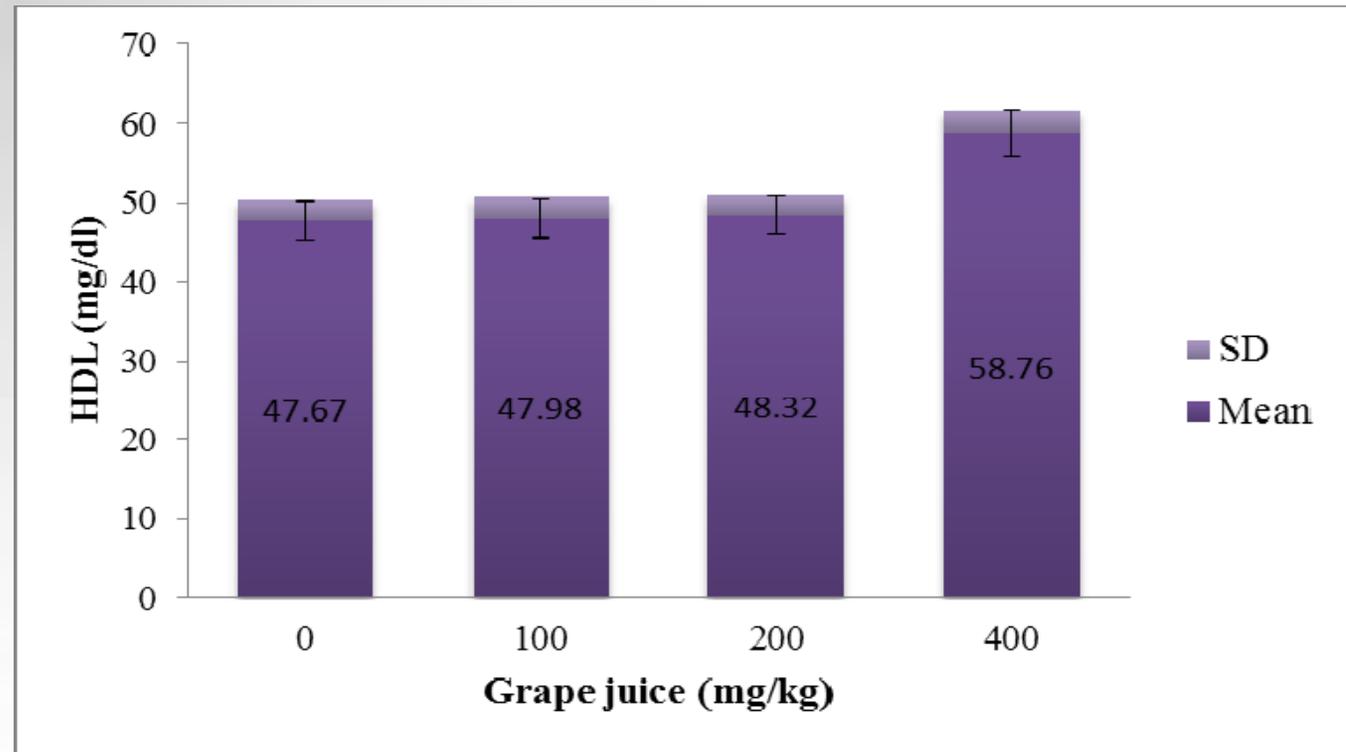


Figure 2- Effect of grape (*Vitis vinifera*) juice on HDL in plasma of rats. There was a significant increase ($p \leq 0.05$) on HDL in plasma between sham and experimental group 400 mg/kg of grape juice.



Results

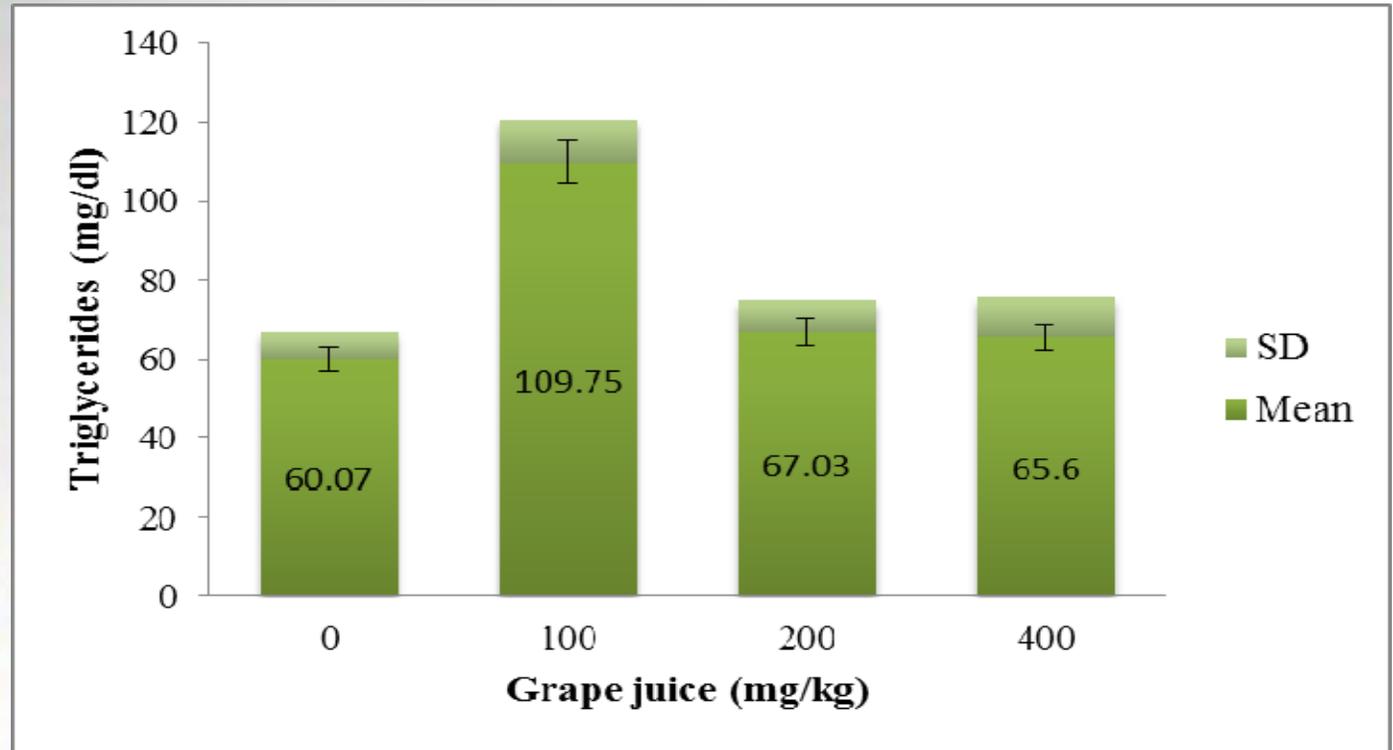


Figure 3- Effect of grape (*Vitis vinifera*) juice on Triglycerides in plasma of rats. There was a significant increase ($p \leq 0.02$) on TG in plasma between sham and experimental group 100 mg/kg of grape juice.



Results

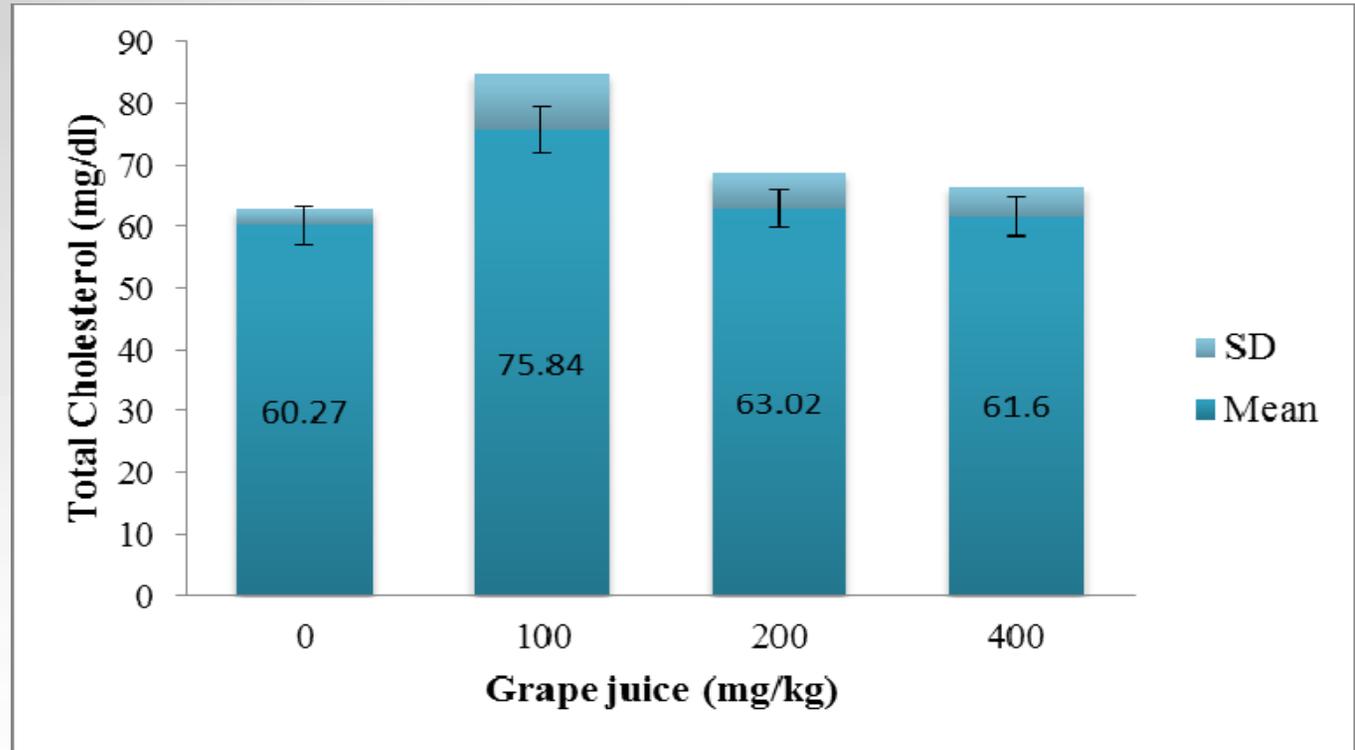


Figure 4- Effect of grape (*Vitis vinifera*) juice on Total Cholesterol(TC) in plasma of rats. There was a significant increase ($p \leq 0.05$) on TC in plasma between sham and experimental group 100 mg/kg of grape juice.



Discussion

- ✧ The results shown LDL levels were elevated in 400mg of grape juice(GJ) but not significant.
- ✧ With 100mg of GJ, TG and TC were increased significantly vs sham($P \leq 0.02$)
- ✧ TC in 200 and 400mg of GJ was significantly decreased vs 100mg.
- ✧ HDL just in 400mg of GJ was significantly increased vs sham.
- ✧ According to a research in 2009, authors said that apple juice has a significant drop in plasma cholesterol and liver cholesterols and an increase in HDL. Setorki M, et al.



Discussion

- ✧ In the case of CVD, flavonoids have been shown to reduce low density lipoprotein (LDL) oxidation, an important step in atherogenesis.
- ✧ Pycnogenol®, a bark extract of the French maritime pine, is rich in flavonoids and was found to be among the most powerful natural antioxidants, was previously shown to inhibit LDL oxidation *in vitro*.
- ✧ Several clinical trials have documented beneficial modifications of the LDL/HDL ratio after intake of flavonoid- and antioxidant-containing food products.



Discussion

- ❖ Kurowska *et al.* reported that orange juice intake (750mL/d) increased HDL cholesterol concentrations by 21%.
- ❖ 100 and 200 mg/kg of GJ maybe could decrease LDL-cholesterol by upregulating the hepatic LDL receptor and/or enhancing sterol excretion.
- ❖ Grape juice could increase HDL-cholesterol by inhibiting CETP activity.
- ❖ Fremont L. *et al.* reported that the major fraction of wine polyphenols consists of proanthocyanidols which are oligomers and polymers of flavonols.



Discussion

- ❖ Soleas, G.J. *et al.* reported that in wine, a fraction is present as condensed tannins containing three to five subunits, which are potent metal chelators
- ❖ Moreover, they may reduce the intestinal absorption of cholesterol.
- ❖ The effect might be related to that of HDL-associated antioxidants such as α -tocopherol and paraoxonase, which can destroy oxidized lipids.
- ❖ In addition, HDL are potent scavengers of free radicals.



Discussion

- ❖ However, the specific mechanism by which GJ beneficially alters plasma lipids is beyond the scope of this study, which tested the effect of GJ on lipid profile.
- ❖ Future studies will be aimed at addressing these mechanisms.
- ❖ In addition, it has a favorable effect on three risk factor for CAD, i.e., increasing HDL-cholesterol and kept stable plasma levels of LDL and TG.
- ❖ Future trials in larger and more diverse populations will shed light on its efficacy in cardiovascular disease prevention.

چقدر خنده داره که خوندن یک صفحه و یا بخشی از کتاب آسمانی مون سخته اما
خوندن صد سطر از پرفروشترین کتاب رمان دنیا آسونه

*How funny it is that reading a page or a chapter of our holy book seems
laborious, but reading hundred lines of a bestseller seems too easy.*

