

**Study The Role of Polyphenolic Extracts of *Prunus Domestica* L.
Wall Nuts As Hypolipidemic, Antioxidant and Antibacterial
agents**

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The present study investigate the effect of polyphenolic extracts of *Prunus domestica* red (PDR) and *Prunus domestica* yellow (PDY) wall nuts on some biochemical parameters in female rats and anti-bacterial *in vitro*.

The work involved the following studies:

Analytical study: involved extraction, isolation and identification of polyphenolic content of PDR and PDY extracts. The UV-Vis Spectra and high performance liquid chromatography of extracted polyphenols are proved the presence of (tannic acid, gallic acid, caffeic acid, vanillic acid, ferulic acid, chlorogenic acid and amygdalin) in both extracts.

Acute toxicity: *in vivo* study included of both extracts was performed on four groups of rats (6 rats in each group). After treatment of different concentration of PDR and PDY polyphenolic extracts (25,50 and 100 mg/kg B.W) and after 72 hr of treatment, no mortality in all rats of experiments can be observed. This indicated that both extracts are orally non toxic.

Boody weight : all rats are divided into normal control group (A) treated with (0.2 mL) DMSO for 30 days, group (B) treated with daily high cholesterol diet for 30 days, and the rest of the two groups (C & D) treated with (25 mg/kg B.W) for PDR and PDY polyphenolic extracts respectively besides high cholesterol diet for 30 days. Group (B) rats showed a significant increase ($P < 0.01$) in the body weight compared with normal control group(A). PDR and PDY polyphenolic extracts are significantly decreased the body weight in groups (C & D). PDR polyphenolic extract reduces the body weight more effective than PDY polyphenolic extract.

Biochemical studies: blood samples collected after 30 days. Lipid profile measured: Group (B) rats showed a significant increase ($P < 0.01$) in serum TC, TG, LDL and VLDL levels compared with normal control group(A). Serum HDL levels are a significant decrease in group (B) ($P < 0.01$) compared with normal control group(A). PDR and PDY polyphenolic extracts significantly decreased the levels of these parameters in groups (C & D) compared with group(B). Consequently the PDR polyphenolic extract reduces the lipid levels more effectively than PDY polyphenolic extract.

Also the *in vivo* included evaluation of serum oxidant-antioxidant status: Group (B) rats showed a significant increase ($P < 0.01$) in serum MDA and Cp levels compared with normal control group(A). The serum Alb level in group(B) are a significant decrease ($P < 0.01$) compared with normal control group(A). PDR and PDY polyphenolic extracts significantly decrease ($P < 0.01$) the levels of MDA and Cp in groups (C & D) compared with group(B). PDR polyphenolic extract reduces serum MDA and Cp levels more effectively than PDY polyphenolic extract. Whereas PDR and PDY polyphenolic extracts are a significant increase ($P < 0.01$) the levels of Alb in groups (C & D) compared with group(B). PDR polyphenolic extract increases serum Alb levels more effectively than PDY.

Antibacterial study: four types of bacteria, two Gram positive (*Staphylococcus aureus*, *Bacillus subtilis*) and two Gram negative (*Escherichia coli*, *Pseudomonas aeruginosa*) have been used to investigate the antibacterial activity of both extracts. Both extracts are actively worked against both types of bacteria.

Furthermore, the highest activity of extracted polyphenolic for PDR against *Pseudomonas aeruginosa* (30 mm) is used, whilst the same

extraction had equally inhabited zone against *Escherichia coli*, *Staphylococcus aureus* and *Bacillus subtilis* (20 mm).

Finally, for extracted polyphenolic of PDY founded that highest activity against *Staphylococcus aureus* (13 mm) and lowest activity against *Bacillus subtilis*.

The final conclusion is that the PDR and PDY extracts are rich in polyphenols. Besides, the polyphenolic compounds non toxic, have affect the hypolipidemic, antioxidant activities and antibacterial.



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