

# ***Allium Cepa* Juice Prevented Oxidative Stress-Mediated Metabolic Disorder Following Chronic Lead Acetate Exposure in Male Rats**

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## **Abstract**

**Background:** The deleterious effects of chemical toxins on human health have been documented. Studies have also shown the health benefits of plant extracts.

**Aims:** We hypothesized that administration of *Allium cepa* (common onion) juice has no significant effect on metabolic indices and markers of oxidative stress in male Wistar rats exposed to lead acetate.

**Study Design:** 28 adult male Wistar rats weighing 150-160g were randomly divided into vehicle, lead acetate (LA), *Allium cepa* juice (ACJ), and LA+ACJ groups for four weeks.

**Methods:** The animals were housed in plastic cages and maintained under standard laboratory conditions. They were simultaneously administered 75mg/kg (P.O.) of LA and 1ml/200g body weight of ACJ (P.O.) using oral gavage.

**Results:** Exposure to LA caused significant reduction in high density lipoprotein (HDL), calcium, superoxide dismutase (SOD), catalase and glutathione (GSH) and also resulted to a

significant increase in total cholesterol (TC), low density lipoprotein (LDL), triglyceride (TG), very low density lipoprotein (VLDL), lipid profile ratios, atherogenic index of plasma (AIP), sodium ions, potassium ions, chloride ions and malondialdehyde (MDA). ACJ treated rats showed a significantly reduced TC, TC/HDL, LDL/HDL and potassium and a significant increase in SOD, catalase and GSH. LA+ACJ group exhibited significantly low LDL/HDL ratio and a significantly high SOD but there was no significant change in TC, LDL, TG, VLDL, AIP, sodium, potassium, chloride, MDA, catalase and GSH.

**Conclusions:** *Allium cepa* juice prevented oxidative stress-mediated metabolic dysfunction following chronic lead acetate exposure in male rats.

**Key words:** *Allium cepa* juice, lead acetate, superoxide, atherogenic index of plasma, malondialdehyde