

**Prophylactic Effect of N-Acetyl Cysteine on Salivary Glands
Against Oxidative Stress in Male Albino Rats: Biochemical and
Histological Study**

ABSTRACT:

Aim of the Study: This research aimed to examine the protective antioxidant role of N-acetyl cysteine (NAC) against H₂O₂ induced oxidative stress in male albino rats.

Material and Methods: Forty adult male albino rats were randomly divided into 4 groups: Group1 (Negative Control Group) (n=10): Normal diet and tap water for drinking, injected daily with 1ml/kg distilled water(DW) (i.p.) for 4 weeks. Group2: (H₂O₂ Treated Group) (n=10) received normal diet, drinking water containing 0.5% H₂O₂ daily to induce oxidative stress and injected daily with 1 ml/kg body weight distilled water(i.p.) for 4 weeks. Group3: (NAC Group) (n=10) received normal diet, tap water for drinking and injected daily with NAC 150 mg /kg body weight (i. p.) for 4 weeks. Group 4: (Protected Group) (NAC+H₂O₂) (n=10) received normal diet and drinking water contain 0.5% H₂O₂ daily to induce oxidative stress and injected daily with NAC 150 mg. /kg body weight (i. p.) for 4 weeks. Blood samples were collected from all the animals groups for testing the antioxidant enzymes (Catalase and Glutathione peroxidase) and blood glucose level. The body weights were checked. At end of the experiment the animals were anaesthetized. The salivary glands were dissected for histologic investigation.

Results: Showed a significant reduction in levels of both Catalase and Glutathione peroxidase enzymes and a significant increase in the blood glucose level at $p \leq 0.05$, and a severe degeneration in salivary glands tissue for the H₂O₂ Treated Group compared to the Negative Control Group, NAC Group and Protected Group (NAC+H₂O₂) which show no significant changes.

Conclusion: This study indicates the prophylactic and protective roles of NAC against H₂O₂ induced oxidative stress deteriorating effect on salivary glands tissue, antioxidant enzymes, and blood glucose level in male albino rats.