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Research Article:

The Antioxidative Role of Moringa oil extract in Modulating Histological and Biochemical changes in the Salivary Glands of Rats under Oxidative Stress Induction

Abstract

Background: Medicinal plants are a rich source of antioxidants, and attention has been drawn to them in subsequent years, as the Moringa plant is one of these sources. The aim of this work is to identify the protective role of Moringa oil versus the oxidative stress induced by H₂O₂ in the salivary glands of rats. **Materials methods:** 27 rats were divided into 3 groups. A daily dose of 1000 mg/kg of moringa oil was used for the first group. The second group received a daily dosage of 2 ml/rat of 0.5% H₂O₂. For 21 days, the third group received a daily dosage of 1000 mg/kg of moringa oil and 2 ml/rat of 0.5% H₂O₂. After 7, 14, and 21 days blood samples are drawn to measure TAC, GSH and MDA, and salivary gland samples are taken for histological examination. **Results:** There are significant differences in TAC, GSH and MDA levels between the treatment groups within each period and significant variations across different periods within the same treatment group. The histological examination suggests that the Moringa oil group generally maintained normal glandular architecture, while the H₂O₂ group exhibited signs of degeneration and necrosis. The Moringa + H₂O₂ group showed a protective effect in some instances, preserving tissue structure. **Conclusion:** the findings imply that Moringa oil could offer protection against oxidative stress by influencing TAC levels and reducing MDA levels. The combination of H₂O₂ and Moringa oil seems to counterbalance the impact of hydrogen peroxide. Moreover the group using Moringa oil generally maintained a structure while the H₂O₂ group showed signs of deterioration and cell death. The group using both Moringa oil and H₂O₂ exhibited some effects at times preserving the tissue structure of the gland.