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Laurus nobilis L. modulates oxidative stress induced by propineb in rats: Impact on hepatic and renal functions

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The increasing use of pesticides has led to significant ecological, environmental, and health concerns, highlighting the need for natural protective agents. This study investigates the potential of *Laurus nobilis L.* as a protective agent against propineb-induced hepatotoxicity and nephrotoxicity in rats. Forty-eight Wistar rats were divided into six groups and treated with propineb and/or *Laurus nobilis L.* either as a powder in feed or as an essential oil for 30 days. Propineb exposure resulted in slow body growth, anemia, and biochemical disturbances accompanied by increases in the relative weight of the liver and kidney. The oxidative stress profile revealed heightened MDA levels and GPx activity, while GSH levels, GST, and CAT activities decreased in the studied organs. Furthermore, propineb induced histological changes in liver and kidney tissues. Otherwise, adding *Laurus nobilis L.* either in powdered or essential oil form, makes it possible to restore most of the parameters measured in this study without any significant differences being detected compared to the controls and the improvement of organ tissue architecture. These results conclusively testify the antioxidant and therapeutic potential of *Laurus nobilis L.* in mitigating propineb-induced oxidative damage.

Keywords: Propineb toxicity, Antioxidant biomarkers, Hepatotoxicity, Nephrotoxicity, Plant extracts, Environmental contaminants