

Antioxidant efficiency of *Prunus laurocerasus* L. fruit extract on doxorubicin induced hepatic and renal damage

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In Turkish traditional medicine, the leaves, fruit and seeds of *Prunus laurocerasus* L., commonly called Cherry laurel, are used to treat various diseases such as cancer, diabetes, influenza, tonsillitis and scalp dandruff. The medicinal value of this plant can be attributed to its rich phenolic content and high antioxidant capacity. In this study, we investigated the efficacy of *P. laurocerasus* (PL) fruit extract in reducing the hepatorenal side effects of doxorubicin (DOX). Sprague-Dawley rats were divided into 4 groups as Control, DOX, PL500+DOX and PL1000+DOX (n=8). PL-extracts were given perorally for two weeks (500 or 1000 mg.kg⁻¹.day⁻¹). After 48-h of DOX injection (15 mg/kg, i.p.), the animals were sacrificed. Compared to control, in DOX group, we observed lower levels of serum albumin, higher alanine transaminase (ALT), aspartate transaminase (AST) and creatinine levels ($P < 0.001$ for each one); decreased Glomerular filtration rate (GFR) ($P < 0.01$); increased urinary neutrophil gelatinase-associated lipocalin ($P < 0.01$); and kidney injury molecule-1 ($P < 0.001$) levels. DOX-induced hepatorenal oxidative stress was approved by increased malondialdehyde (MDA) and decreased glutathione (GSH) levels and decreased superoxide dismutase (SOD) and catalase (CAT) ($P < 0.001$ for each one) activities. Although PL-treatment did not change serum and urinary parameters, it significantly returned hepatic MDA and GSH levels, SOD and CAT activities ($P < 0.001$ for each one) as well as renal MDA ($P < 0.001$) and GSH ($P < 0.05$) levels and CAT activity ($P < 0.001$) to control levels. While high dose PL provided a more significant ($P < 0.05$) reduction in renal lipid peroxidation, it did not significantly affect other parameters. With these observations, it can be suggested that rather than increasing the dose, a longer duration of PL treatment after DOX induction may be more effective in preventing tissue damage and oxidative stress.

Key words: Albumin, Cherry laurel, Creatinine, Glomerular filtration rate (GFR), Kidney injury molecule-1 (Kim-1), Liver, Neutrophil gelatinase-associated lipocalin (NGAL), Oxidative stress, Reactive oxygen species (ROS), Tissue damage