The Effects of Silymarin on Acetaminophen Induced Acute Hepatic and Renal Toxicities in Domestic Pigeons (*Columba livia*)

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Abstract: This study evaluated the effects of silymarin on acetaminophen-induced acute liver and kidney toxicities in domestic pigeons (*Columba livia*). Standard colorimetric methods using commercial kits were used to measure the serum activities or levels of biomarkers associated with liver and kidney damage such as aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), urea, uric acid, total protein, albumin, and total cholesterol in 21 pigeons randomly assigned into 3 groups (A, B, and C). Groups A and B were administered acetaminophen 3000 mg/kg, per os once at the beginning of the experiment (hour 0). Group B pigeons were further treated with silymarin 35 mg/kg, starting at 12 hours post acetaminophen exposure (Post-AA) with the silymarin treatment continuing 2 times daily for 3 days. Group C pigeons served as the control group and were given tap water as the placebo. Blood was collected from the pigeons at hours 0, 12, 24, 48 and 72 of the experiment for serum biochemistry analyses. The results showed that treatment of Group B pigeons with silymarin decreased the serum levels of AST, ALT, urea, and uric acid compared to the untreated control (Group A). It also prevented decreases in serum ALP, total protein, albumin, and cholesterol seen in Group A. Mortality, which was 86% in the untreated control (Group A), was completely prevented in group B. It was concluded that silymarin remediated the effects of acetaminophen-induced acute toxic liver and kidney injuries that may result in pigeon mortality.