

The aim of the present study is to evaluate the potential protective effect of *Apium graveolens* (*A. graveolens*) against cumulative DOX-induced toxic effects to the heart, liver and blood components in male rabbits. DOX was administered intraperitoneally (i.p.) to the rabbits at a dose of (4mg/kg) four times within 14 days (cumulative dose 16 mg/kg). *A. graveolens* was given orally (7.5 g/kg/day) for 14 days. The results indicated that the concurrent use of *A. graveolens* with DOX significantly ( $p<0.05$ ) protected against DOX-induced toxicities as evidenced by significant increase in RBC, WBC, Hb, and neutrophiles levels ( $p<0.05$ ). No significant changes in monocytes, lymphocytes, eosinophiles and basophiles percentages were noticed in all groups of treatment. Also, Coadministration of *A. graveolens* significantly ameliorated the DOX-induced elevation in serum levels of malondialdehyde (MDA), lactate dehydrogenase (LDH), Alanine Transaminase (ALT), Aspartate Transaminase (AST) and bilirubin as well as inhibited DOX-provoked serum glutathione (GSH) depletion ( $p<0.05$ ). No significant alterations in serum albumin level and catalase (CAT) activity were observed in all groups of treatment. Furthermore, the histopathological sections showed that the DOX caused significant structural changes in hepatic and cardiac tissues like necrosis and inflammation which were attenuated with combined use of *A. graveolens*. The study conclude that *A. graveolens* has the potential in protecting against DOX -induced cardiac, hepatic and hematological damage through a mechanism related to direct and indirect antioxidant property.