WILD GARLIC ESSENTIAL OIL AS A NUTRITIONAL STRATEGY FOR COUNTERACTING DOXORUBICIN-INDUCED CARDIOTOXICITY IN RATS

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The aim of the study was to estimate the impact of two-week wild garlic (Allium ursinum) essential oil (WGO) consumption on doxorubicin (DOX)-induced cardiotoxicity in rat model.
24 male *Wistar albino* rats were randomly divided into the following groups: healthy control (CTRL), doxorubicin (DOX), and DOX+WGO. Rats were pretreated with WGO (dose of 100 mg/kg/day for 2 weeks orally, for 2 weeks) before injection of a single dose of 15 mg/kg DOX. Three days following DOX application, echocardiographic examination was performed for assessment of in vivo cardiac function. Afterwards, all rats were sacrificed, blood samples were collected and hearts were isolated and perfused on *Langendorff* apparatus for monitoring *ex vivo* myocardial function. Systemic level of pro-oxidants were determined in plasma samples, while cardiac redox status was assessed from coronary venous effluent samples. Antioxidant enzyme values were measured in erythrocyte lisate, whereas heart tissue samples were subjected to histological analysis.
Our results highlighted that DOX induced prominent depression of cardiac function, whereas WGO intake markedly recovered heart contractility and relaxation force. WGO considerably decreased level of the most of measured pro-oxidants both in blood and coronary venous effluent and was also capable of enhancing activity of antioxidant enzymes. Histological injury after DOX injection were significantly alleviated by WGO therapy.
WGO exerted promising effects in diminishing DOX-induced cardiotoxicity predominantly via strong antioxidant property. Our findings suggest WGO as a novel nutritional strategy for cardioprotection.

Keywords: wild garlic oil, doxorubicin-induced cardiotoxicity, rat