Food Chem Toxicol. 2010 May;48(5):1178-84. Epub 2010 Feb 8.

Cranberry (Vaccinium macrocarpon) protects against doxorubicin-induced cardiotoxicity in rats.

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Source

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Abstract

Doxorubicin (DOX) is a widely used cancer chemotherapeutic agent. However, it generates free oxygen radicals that result in serious dose-limiting cardiotoxicity. Supplementations with berries were proven effective in reducing oxidative stress associated with several ailments. The aim of the current study was to investigate the potential protective effect of **cranberry** extract (CRAN) **against** DOX-induced cardiotoxicity in rats. CRAN was given orally to rats (100mg/kg/day for 10 consecutive days) and DOX (15mg/kg; i.p.) was administered on the seventh day. CRAN protected **against** DOX-induced increased mortality and ECG changes. It significantly inhibited DOX-provoked glutathione (GSH) depletion and accumulation of oxidized glutathione (GSSG), malondialdehyde (MDA), and protein carbonyls in cardiac tissues. The reductions of cardiac activities of catalase (CAT), superoxide dismutase (SOD), glutathione peroxidase (GSH-Px) and glutathione reductase (GR) were significantly mitigated. Elevation of cardiac myeloperoxidase (MPO) activity in response to DOX treatment was significantly hampered. Pretreatment of CRAN significantly guarded **against** DOX-induced rise of serum lactate dehydrogenase (LDH), creatine phosphokinase (CK), creatine kinase-MB (CK-MB) as well as troponin I level. CRAN alleviated histopathological changes in rats' hearts treated with DOX. In conclusion, CRAN **protects against** DOX-induced cardiotoxicity in rats. This can be attributed, at least in part, to CRAN's antioxidant activity