

# Evaluation of in vitro and in vivo antioxidant potential of polysaccharides from Aloe vera (*Aloe barbadensis* Miller) gel.

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## Author information

### Abstract

In the present study, the antioxidant activity of the polysaccharides from aloe vera (*Aloe barbadensis* Miller) gel was evaluated, in vitro by five established methods, 1,1-diphenyl-2-picrylhydrazyl (DPPH(-)) radical scavenging, nitric oxide (NO) scavenging, hydrogen peroxide scavenging, superoxide radical (O(-2)) scavenging and reducing power assay, and in vivo against doxorubicin (DOX)-induced myocardial oxidative stress (OS) in albino wistar rats. The polysaccharides exhibited significant inhibitory activity against DPPH(-), superoxide, NO and hydrogen peroxide scavenging assay with significant reducing activity at all concentrations used. DOX-induced (7.5 mg/kg, intravenously) cardiotoxicity manifested biochemically by a significant decrease in blood and tissue glutathione (GSH) along with elevated levels of serum lactate dehydrogenase and creatine phosphokinase. In addition, cardiotoxicity was further confirmed by the significant increase in lipid peroxidation expressed as thiobarbituric acid reactive substances (TBARS), catalase (CAT) and superoxide dismutase (SOD). Administration of aloe vera polysaccharides for 14 days produced a marked protection against cardiotoxicity induced by DOX evidenced by significant reductions in serum lactate dehydrogenase, serum creatine phosphokinase, cardiac TBARS, CAT and SOD along with increased levels of blood and tissue GSH in a dose-dependent manner. The present investigation is the first to establish the antioxidant potency of the polysaccharides from aloe vera against DOX-induced myocardial OS.

PMID:

24524259

[PubMed - indexed for MEDLINE]

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