



Cardioprotective Effect of Croton macrostachyus Stem Bark Extract and Solvent Fractions on Cyclophosphamide-Induced Cardiotoxicity in Rats

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Introduction

Croton macrostachyus has been used in traditional medicine to manage heart failure and other heart diseases in Ethiopia. To evaluate in vitro antioxidant and in vivo cardioprotective activities of stem bark extract and solvent fractions of Croton macrostachyus on cyclophosphamide induced cardiotoxicity in rats.

The antioxidant activities of crude extract and solvent fractions of Croton macrostachyus were evaluated by using DPPH radical scavenging assay method. Whereas, cardioprotective activity, the negative control group were treated with cyclophosphamide alone (200 mg/kg, i.p.). Enalapril 10 mg/kg was used as a reference drug.

The crude extracts were administered at three dose levels (100, 200, and 400 mg/kg). Aqueous and ethyl acetate fractions were given at two dose levels (100 and 200 mg/kg). Excepting normal control group, all groups were subjected to cyclophosphamide toxicity on the first day. The cardioprotective activity were evaluated by using body weight, heart weight and serum cardiac biomarkers. Also, histopathological studies of heart tissues were carried out.

The results of antioxidant studies reveal that the crude extract and solvent fractions exhibited free radical scavenging activity in a dose dependent manner. Serum cardiac biomarkers were decreased significantly by the administration of crude extracts and solvent fractions. Histopathological results of heart also supported the cardioprotective activity of the crude extract and solvent fractions of Croton macrostachyus.

The results of the present study indicate that the crude extract and solvent fractions of Croton macrostachyus possesses antioxidant and cardioprotective activities.

Biography

Muluken Altaye Ayza is a clinical pharmacist by profession and works as a lecturer and researcher at Mekelle University, Ethiopia. He holds an MSc in clinical pharmacy. He has 3 years of teaching experience in public university. Muluken is very interested in cardio-oncology researches.