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THE CARDIOPROTECTIVE EFFECT OF *ARGEMONE MEXICANA* ON ISOPROTERENOL INDUCED CARDIAC TOXICITY IN RATS

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ABSTRACT

Cardiovascular diseases comprise the most prevalent serious disorders in the developed nations. Cardiotoxicity occurs during therapy with several drugs and may be the dose limiting factor in the treatment. In similar to, Isoprenalin (a synthetic catecholamine and beta adrenergic receptor) has been found to cause severe cardiac damage. Clinical and experimental investigations suggested that increased oxidative stress associated with an impaired antioxidant defence status initiates a cascade of reactions responsible for Drugs induced cardio toxicity. The interest to undertake this investigation is due to Argemone mexicana could be a potential source of natural antioxidant, that could have greater importance as medicinal agent in blocking or slowing oxidative stress related degenerative diseases. Argemone mexicana have been reported for in vitro oxidant activity. The present study aimed to evaluate cardioprotective potential screened in Isoproterenol induced cardiac stress in which Ethanolic Extract of Argemone Mexicana Leaves (EAML 200 mg/kg,400mg/kg) were administered & Isoproterenol (85mg/kg s.c.) administered groups respectively. The present study concludes that restoration of Hemodynamic Parameters(BP,ECG),Biochemical Parameters-cardiac markers(CK-MB,LDH,SGOT), antioxidant markers(MDA,CAT,SOD,GTH)) Histopahological indications

KEYWORDS: Isoproterenol, Antioxidant, ECG, blood pressure, cardiotoxicity.

INTRODUCTION

Cardiovascular diseases comprise the most prevalent serious disorders in the developed nations. The prevalence rises progressively with age from 5% at age 20 to 75% at age ≥ 75 years.[1] The use of higher doses of anthracyclines and their combined use with other agents, the incidence of cardiomyopathy have greatly increased.[2]

Isoproterenol (ISO) induced myocardial cell death is well known standard drugs model to study the advantageous effect of many drugs on cardiac dysfunction. Extreme stress in myocardium and necrotic lesions in the heart muscles is caused by ISO which is a β-adrenergic agonist. ISO causes myocardial injury and cause of that membrane permeability changes take place, which brings about the loss of activity and integrity of myocardial membranes. Myocardial Infarction caused by ISO in rats has been shown to be accompanied by hyperglycemia and lactate dehydrogenase activities. Isoproterenol induced cardiac damage involves generation of highly cytotoxic free radicals through auto-oxidation of catecholamine and has been seen as one of the causative factor.[3]

Argemone mexicana is an local herb commonly known as Prickly poppy. It belongs to the family Papaveraceae. Argemone mexicana is noted to possess medicinal uses in traditional system of medicine. During last few years, there has been growing interest in the study of medicinal properties of this plant and it is reported for Antimicrobial, Antidiabetic, Antioxidant and Hepatoprotective activity. The plant was also reported for other activities like Larvicidal activity, Wound healing activity, Cancer activity, Anthelmintic activity, Anti-inflammatory and analgesic, Neuropharmacological studies. In light of these medicinal properties, this plant can be represented as a valuable source of medicinal compound.[5]

Argemone Mexicana leaves has been reported for different chemical constituents like Alkaloids, Amino acids, flavonoids, Phenolics, and fatty acids as a major phytochemical groups.[7]

The interest to undertake this investigation is due to the fact that no study regarding the cardioprotective effect have been reported in literature. Argemone mexicana have been reported for in vitro oxidant activity. In proposed investigation its cardioprotective potential will screen in Isoproterenol induced cardiac stress which might be reduced due to its antioxidant property.