Evaluation of Cardioprotective Effect of Capparis Sepiaria Linn. Root in Doxorubicin Induced Heart Failure in Rats

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Abstract:

Capparis sepiaria Linn. known as ‘Himsra’ in Ayurveda is employed in folk medicine since time immemorial. In Ayurveda it is described as ‘Hrudayottejak’- cardiotonic. Currently used cardiotonics have a narrow therapeutic margin and their efficacy remains controversial. The present study was designed to evaluate the cardioprotective effect of alcohol extract of C. sepiaria root against Doxorubicin induced heart failure.

Cardiotonic effect of C. sepiaria root extract was studied in vitro using Langendorff’s heart perfusion assembly. In the in vivo study, Doxorubicin (2mg/kg, i.p, daily) for 7 days was used to induce cardiotoxicity. The protective effect of C. sepiaria root extract was studied at doses 200 and 400 mg/kg and the effects were compared with the standard cardiotonic drug, Digoxin. The effects were assessed by ECG; serum SGOT, LDH and CPK. The effect of alcohol extract of C. sepiaria root on normal heart was also evaluated.

In the in-vitro study, C. sepiaria at 2 mg/mL concentration showed a moderately significant cardiotonic effect in the failing heart model. In-vivo study revealed that ECG of C. sepiaria treated groups showed a significant decrease in QT and RR interval prolongation and the serum SGOT, LDH and CPK levels were significantly reduced, in comparison with the disease control. The results were confirmed by the histopathology studies.

Conclusion: Thus, the study revealed that C. sepiaria root possesses significant cardioprotective effect. Acute toxicity studies revealed that the test extract is safe unto 2000 mg/kg (p.o.) in female Wistar rats. Phytochemical studies of the test extract revealed the presence of phenolic compounds and saponins.