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Effects of hydro-ethanolic extract of berberis vulgaris fruit on rabbit isolated heart

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Abstract

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Several therapeutic effects including antimicrobial, antidiarrhea, hepatoprotection and cardiotonic for Berberis vulgaris have been described. In the present study, the effects of hydro-ethanolic extract of Berberis vulgaris on the rate and contractility of isolated heart were examined. The heart mounted on a modified Langendorff apparatus and circulation was perfused through aorta. Heart rate and contractility were determined in the presence of four concentrations of hydro-ethanolic extract (0.5, 1.0, 2.0 and 5.0 mg/100ml) and diltiazem, a calcium channel blocker (0.1, 1,10 and 100 μM) in comparison with baseline values in two different groups of experiments as follows: 1) Perfused heart with normal Krebs solution (group1 experiments, n=10). 2) Perfused heart with calcium free Krebs solution (group 2 experiments, n=9). In group 1 only 3 highest concentrations of diltiazem showed significant reduction in heart rate ($p<0.05$ to $P<0.001$). However, 3 highest concentrations of diltiazem showed significant decrease and the last 2 concentrations of hydro-ethanolic extract increased heart contractility significantly ($p<0.01$ to $P<0.001$). In group 2 only the last concentration of diltiazem showed significant reduction in heart rate and contractility ($p<0.05$). The relationship between concentrations of hydro-ethanolic extract and heart rate in both group were negative ($p<0.01$ to $p<0.001$). However, there was positive correlation between concentrations of hydro-ethanolic extract and heart contractility. These results showed that of hydro-ethanolic extract of Berberis vulgaris has strong effect on heart contractility. The results of the present study may also indicate an activatoion of the calcium channel of isolated heart by the extract.

Reaxys Database Information

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Author keywords

Berberis vulgaris; Calcium channel blocker; Isolated heart; Rabbit

Indexed Keywords

EMTREE drug terms: alkaloid; calcium; calcium channel; diltiazem; ethanolic extract of berberis vulgaris; unclassified drug

EMTREE medical terms: animal experiment; aorta; article; Berberis; chemical analysis; circulation; citric acid cycle; controlled study; correlation analysis; female; heart muscle contractility; heart perfusion; heart rate; isolated heart; male; nonhuman; rabbit

Chemicals and CAS Registry Numbers: calcium, 7440-70-2; diltiazem, 33286-22-5, 42399-41-7

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