



Iono- and Chronotropic Effects of Aqueous Extract of *Berberis lycium* Royle Root Bark and Berberine on *In Situ* Frog-Heart Preparation

Maqsood AHMAD¹, Nawazish-i-Husain SYED^{2*}, Muhammad S. AKHTAR³,
Alia ERUM³, Qaisar MAHMOOD¹ & ALAMGEER³

¹ College of Pharmacy, Government College University, Faisalabad 38000, Pakistan

² University College of Pharmacy, University of the Punjab, Lahore 54000, Pakistan

³ Department of Pharmacy, University of Sargodha, Sargodha 40100, Pakistan

SUMMARY. *Berberis lycium* Royle is used in folk medicines for treating various ailments however it has not been investigated in cardiac problems at pharmacological level. Here, iono- and chronotropic effects of *B. lycium* root bark's aqueous extract and berberine were studied on frog-heart. Present data showed that aqueous extracts of *B. lycium* and berberine exhibited dose-dependent negative chronotropic and ionotropic effects and at higher doses both caused a heart block. Berberine also displayed a positive ionotropic effect but at very low doses. Diltiazem did not antagonize positive ionotropic effect of berberine indicating that this activity is independent of L-type calcium channels, while propranolol antagonized the positive ionotropic effect, suggesting involvement of β_1 -adrenoceptors. It is concluded that ionotropic and chronotropic effects exerted by aqueous extract of *B. lycium* may be due to berberine while its negative ionotropic actions and heart block may attribute to other active principle(s) present in the extract.

KEY WORDS: Berberine, *Berberis lycium* Royle, Chronotropic, Ionotropic.

* Author to whom correspondence should be addressed. *E-mail:* snihusain@yahoo.com; nawazishusain.syed@strath.ac.uk