

ABSTRACT

Charles University

Faculty of Pharmacy in Hradec Králové

Department of Pharmacology and Toxicology

Student: Barbora Gaidosová

Supervisor: doc. PharmDr. Jana Pourová, Ph.D.

Title of diploma thesis: Study of the vasodilatory effect of tamarixetin in an *ex vivo* porcine coronary vessel model.

Flavonoids, as one of the most common herbal substances, are known for their beneficial effects on the human organism and in particular on the cardiovascular system.

The aim of this thesis was to screen ten substances contained in hawthorn for vasodilatory effects, select the most active one, and subsequently verify mechanism(s) of its vasodilatory action. The experiments were conducted on an *ex vivo* vascular model using the pig coronary artery. In screening, the tested substance was always cumulatively added to the precontracted arterial rings at increasing concentrations while monitoring the vasodilatation. Vasoactive inhibitors or agonists of several vasodilatory pathways were used for verification of possible mechanism(s) of action.

The results showed that the most active vasodilatory substance was tamarixetine with an EC_{50} of $47.8 \mu\text{mol.l}^{-1}$. The detail mode of action has not been discovered however tamarixetine has been shown to influence the voltage dependent calcium channels of L-type on the vascular smooth muscle cell membrane. Its action may be either direct or indirect via an intracellular structure influencing the L-type calcium channels. Further experiments are needed to specify this mechanism of action.