

Abstract

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Title of Thesis: Mechanism of the vasorelaxant effect of biochanin A studied *ex vivo* on isolated rat aorta

Flavonoids are secondary plant metabolites which are known for their wide range of effects. Many of them have beneficial effects on the human organism. They have anti-inflammatory properties, antioxidant activity and positive effect on cardiovascular system.

The main aim of this thesis was to determine possible vasorelaxant mechanisms of action of selected isoflavonoid biochanin A. The vasorelaxation potential was verified in *ex vivo* conditions on isolated rat aortic rings. The results has confirmed dose-dependent induced vasodilatation.

Our experiments confirm that the vasodilatory effect of biochanin A is independent on the function of endotel. Beside that the experimental part of this thesis is dealing with the effect of this substance on Ca^{2+} channels of L-type in the plasma membrane and whether vasorelaxant effect is dependent on extracelullar Ca^{2+} . Our results confirm that similarly as nifedipine biochanin A blocks these channels as well. Moreover biochanin A in the medium without Ca^{2+} was able to induce relaxation with increasing dose in phenylephrine precontracted aortic rings. This shows that his effect is not dependent on the influx of extracellular Ca^{2+} .