

# Abstract

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**Title of diploma thesis:** The *in vitro* effects of selected substances on isolated rat aorta

Flavonoids are a numerous group of secondary plant metabolites. Flavonoid compounds are substances widely extended in nature and many of them have a positive influence on human health, primarily for their vasodilatory, antioxidant and anti-inflammatory effects. Three substances were selected for this diploma theses: two substances of isoflavonoid group, genistin and genistein, and the end product of genistein metabolism, 4-ethylphenol. The aim of this work is examination of vasorelaxant effects of this substances *in vitro*.

Vasorelaxing potential of tested substances was tested *in vitro* in isolated aortic rings of Wistar rat. The effect of increasing doses of individual substances in precontracted aortic rings with intact endothelium was measured.

From the obtained values of vessel tension, the DRC curves and  $EC_{50}$  values were created. The results were evaluated. The results analysis shows, that genistein ( $EC_{50}$   $2,903 \cdot 10^{-5}$  M) had the most significant activity. Also genistin ( $EC_{50}$   $4,045 \cdot 10^{-4}$  M) and high doses of 4-ethylphenol ( $EC_{50}$   $1,509 \cdot 10^{-3}$  M) caused a partial vasorelaxation.