

## ABSTRACT

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This study is focused on the research of the effects of flavonol quercetin and its selected metabolites (3-(3-hydroxyphenyl)propionic acid and 3-hydroxybenzoic acid) on blood vessels *in vitro*. A standardized method of an isolated rat aorta was used. The aim of this study was to find out how substances act on the isolated aorta and if the effect of the effective metabolite is dependent on the presence of the endothelium in the vessel. After precontracting with noradrenaline, individual concentrations of the test substances were added to the aortic ring bath (final concentrations in the bath ranging from  $10^{-7}$  to  $10^{-3}$  M). From the measured values  $EC_{50}$  values (quercetin =  $3,63 \cdot 10^{-5}$  M, 3-(3-hydroxyphenyl)propionic acid =  $3,21 \cdot 10^{-6}$  M, 3-hydroxybenzoic acid =  $4,38 \cdot 10^{-5}$  M) were obtained and the corresponding DRC curves were constructed using *S.P.E.L. Advanced Kymograph Software*. The experiment was performed once again with quercetin and 3-(3-hydroxyphenyl)propionic acid on the endothelium-denuded vessel. According to the results is 3-(3-hydroxyphenyl)propionic acid the most effective substance of the three tested and its effect is (unlike the effect of quercetin) dependent on the presence of endothelium in the vessel. The lowest ability of vasorelaxation was shown by 3-hydroxybenzoic acid.