

# Abstract

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**Title of diploma thesis:** Vasodilatory effects of bisphenol AF *ex vivo*

Bisphenols are organic compounds used in the manufacture of plastics, resins, varnishes and lot of other products. However, their effects on human body are associated with a number of adverse effect that need to be investigated in more detail.

The aim of this diploma thesis was to determine whether bisphenol AF has vasodilating effects *ex vivo* and to verify the mechanism of the relaxing effect. The experiments were performed on an isolated thoracic aorta of a Wistar rat. Bisphenol AF was added cumulatively to the precontracted aorta at increasing concentrations and we monitored whether vasodilation was induced. In testing the mechanism of action, we used inhibitors of the mechanisms tested during the experiment. The obtained results were evaluated using the GraphPad Prism program.

The results show that bisphenol AF has a dose-dependent *ex vivo* vasodilatory effect ( $EC_{50} = 57.16 \mu\text{mol/l}$ ). The mechanism of this effect is the blockage of voltagegated calcium channels on the vascular smooth muscle cell. The participation of other tested mechanisms has not been confirmed.

**Key words:** bisphenol AF, rat, aorta, vasodilation, *ex vivo*