

# ABSTRACT

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Title of Diploma Thesis: Development and validation of HPLC method for the determination of nicotine in spray and in e-cigarette cartridges

The aim of this diploma thesis was the development and validation of HPLC method for the determination of nicotine in mouth spray and in e-cigarette cartridges.

The development was based on available methods that deal with HPLC analysis of nicotine and its related compound cotinine. The optimum conditions were found using XTerra<sup>®</sup>MS C18 column (100 x 4.6 mm, 3.5  $\mu$ m) with mobile phase acetonitrile : 10mM ammonium acetate pH 9 (20 : 80, v/v). The flow-rate was 1 ml/min and the wavelength of the detector was set up at 260 nm. Trimethoprim was used as an internal standard. Under these conditions nicotine, cotinine and trimethoprim were separated within 5 minutes.

It was impossible to determine cotinine in the analysis of mouth spray and chosen electronic cigarette cartridges due to coelution of used excipients. Therefore the developed HPLC method was validated and system suitability parameters were evaluated only for nicotine. The results of validation demonstrated, that the method provides precise and accurate results and it is suitable for its intended purpose.