This bachelor's thesis discusses miniaturized ion source for atmospheric pressure chemical ionization in which the main component is a heated glass microfluidic chip. The ion source was assembled from the mirocfluidic chip placed on a micromanipulator and a needle electrode creating a corona discharge. The optimization of geometric arrangement of these components towards to inner heated capillary of the mass spectrometer LCQ Fleet (Thermo) was based on the signal intensity of reserpine. The solution of reserpine with concentration 10 μg/ml was continuously brought to the heated nebulizer chip using a syringe pump. Furthermore, the flow rate of the nebulizing gas was optimized. The signal intensity of protonated molecule was two orders of magnitude higher than the signal generated by the commercial ion source for APCI (Thermo) using the same mass flow rate of the analyte. High signal instability of the detected ions is the persisting problem of the miniaturized ion source.

Key words: mass spectrometry, micro APCI, microfluidic chip