

## Abstract

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Title of Diploma Thesis: Determination of rocuronium, vecuronium and pancuronium muscle relaxants by capillary electrophoresis with contactless conductivity detection

A new method of capillary zone electrophoresis with contactless conductivity detection for the determination of pancuronium bromide, vecuronium bromide and rocuronium bromide was developed. The separation was carried out in fused-silica capillary with internal diameter 50  $\mu\text{m}$ , total length 75 cm and effective length 45 cm. Optimal background electrolyte was 30mM acetate buffer of pH 5,75 containing 20 mg/ml of hydroxypropyl- $\gamma$ -cyclodextrin. Phenyltrimethylammonium iodide was used as internal standard. The separation was performed at 25°C, the applied voltage was 20 kV. The samples were injected hydrodynamically at 50 mbar for 6 s. Under such optimal conditions the separation took less than 4 min. Calibration curves were linear for all analytes in the range 50 – 250  $\mu\text{g/ml}$ , the coefficients of correlation were in the range 0,9954 – 0,9983. The limits of detection were 13,2  $\mu\text{g/ml}$ , 11,1  $\mu\text{g/ml}$  and 11,3  $\mu\text{g/ml}$  for pancuronium bromide, vecuronium bromide and rocuronium bromide, respectively. The accuracy was tested with the standard addition of known amount of an analyte at three concentration levels and expressed as the recovery. The values of the recovery were in the range 97,21 – 103,52% with RSD = 0,88 – 3,78%. The method was successfully applied to the assay of pancuronium bromide, vecuronium bromide and rocuronium bromide in pharmaceutical preparations Pavulon, Norcuron and Esmeron.