The goal of this bachelor's thesis was to develop and validate a new method enabling detection of etoposide in plasma and the vitreous humour. Etoposide belongs to the roup of cytostatics used for retinoblastoma and other tumours treatment. It is possible to determine etoposide by high performance liquid chromatography, enzimoimmunoanalyticly, or by
radioimmunoanalysis. Etoposide is tied in plasma up to 95% to plasmatic proteins, namely albumin, and that is why the drug dosage is low. Monitoring of the etoposide level enables more effective and safer possibilities of treatment. Etoposide is determined by high performance liquid chromatography with UV detection at 229 nm. During the evaluation of the method its accuracy, robustness, linearity and range and limit of detection was checked. The method was checked on 200 plasma and vitreous humour of rabbits. Calibrating curve is linear up to 80 μg/ml in plasma as well as in the vitreous humour. Variation coefficient regarding the repeatability, reproducibility and robustness was lower than 10%. It was found out that repeated de-freezing of the sample does not effect the etoposide determination. This method is suitable for determination of etoposide in vitreous humour and plasma.