

ABSTRACT

Solid-phase microextraction of oxazepam from plasma

Rigorous thesis

Mgr. Martin Raška

Charles University in Prague, Faculty of Pharmacy in Hradec Králové,
Department of Pharmaceutical Chemistry and Drug Control, Heyrovského 1203,
Hradec Králové

This rigorous thesis deals with the issue of extracting active compounds from the biological material. It's specifically focused on the extraction of oxazepam from plasma sample (containing 10 percent of plasma) using solid-phase microextraction (SPME) followed by the analysis of extracted compound using high performance liquid chromatography (HPLC). SPME is ideal method for biological material processing. It's simple and effective sample preparation technique integrating sorption, desorption and concentration of an analyte, that doesn't require use of any solvents or complicated apparatus. The basic principle of this method is exposure of liquid or fluid sample to a small amount of extraction phase. Polydimethylsiloxan/divinylbenzen (PDMS/DVB) fiber was used for the extractions from plasma samples undertaken in the practical part of this thesis. Except the quantitative analysis there were plasma samples containing oxazepam in concentration of 0,1 mg/ml used. The optimal conditions of the extraction were determined in the first part of the practical section. Adjusting pH of the plasma sample had no positive effect to improve the extraction. Time schedule sorption/desorption - 30/10 minutes proved to be the most suitable. It was followed by the quantitative analysis of oxazepam, during which calibration curve was obtained. The final part of this thesis was focused on validation of used method. It included precision, accuracy, linearity, selectivity, ruggedness, limit of detection and limit of quantitation.