

ABSTRACT

ANALYTICAL DETERMINATION OF ACTIVE COMPOUNDS BY LIQUID CHROMATOGRAPHY II.

The Preliminary Study of SPME

Master's Thesis

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This thesis deals with the issue of analytical determination of active compounds by liquid chromatography. It's specifically focused on determination of benzodiazepines in biological material by using solid-phase microextraction (SPME) and high performance liquid chromatography (HPLC). HPLC is one of the most important chromatographic methods today. Its main advantages are sensitivity, selectivity and speed of separation and creation of reproducible record. SPME can be described as a simple and effective sample preparation technique integrating sorption, desorption and concentration of an analyte. This technique is solvent-free and requires no use of a complicated apparatus. Its basic principle is the exposure of liquid or fluid sample to a small amount of extraction phase. The following chromatographic conditions were proved to be optimal. Methanol:water (80:20) was used as a mobile phase with pH value adjusted to 7.5, flow rate was 0.8 ml/min and detection wavelength was 254 nm. Polydimethylsiloxane fiber (PDMS) was used for the microextraction and concentration of oxazepam in the sample was 0.1 mg/ml. In case of the water sample, 2/2 min sorption/desorption time schedule and no pH adjusting provided the best results. The concentration of extracted oxazepam was measured in water and plasma samples.

