

ABSTRACT

Charles University, Faculty of Pharmacy in Hradec Králové

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Title of Thesis: Use of Liquid Chromatography in Pharmaceutical Analysis VI.

This diploma thesis is focused on optimization HPLC method used in University hospital Hradec Králové for determination of imatinib. Separation was performed on column: Gemini NX 5 μm C18, 150 \times 4,6 mm. There was tested the influence of temperature on column, concentration of ammonium acetate, composition of the mobile phase with changing levels of organic and aqueous components and influence of flow gradient. The optimal conditions of separation were chosen: mobile phase 70% metanol-30% 10 mM ammonium acetate pH 10, the flow rate 0,8 ml/min [0–1,5 min.], 1,2 ml/min [1,5–5 min.], 1,2 ml/min [5–13 min.], the detection in the UV the wavelength of 260 nm and the temperature on the column 40 °C. At the same time extraction of imatinib from biological sample was optimized. The deproteinization and liquid-liquid extraction and ratio of hexane-ethyl acetate were tested for the analysis of biological material. Liquid-liquid extraction and 15:85 hexane-ethyl acetate were chosen as more efficient. The method was extended to other two drugs: dasatinib and nilotinib during testing of imatinib. At the end of testing these three drugs were tested by HPLC with MS detection. Selected parameters of validation were used (specificity, accuracy, robustness, limit of quantitation, limit of detection, linearity and precision).