Abstract

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Title of thesis: GC analysis of drugs using ionic liquid as a stationary phase II

This thesis dealt with analysis of ibuprofen and its four pharmacopoeial impurities samples after derivatization by alkylchloroformates by gas chromatography (GC). The thesis builds on a thesis by Karolína Bärová (2018), who tested these samples on one column with a nonpolar stationary phase and on three columns with ionic liquid as a polar stationary phase. Three other columns with ionic liquids were used in this thesis, which showed higher polarity than the columns used by K. Bärová.

There was an effort to describe the retention mechanisms, that were manifested here, and to optimize the conditions of the method on all the three columns. Following the previous experiments other options for improvement of the extraction yield of the derivatives into a nonpolar solvent were tested.

The results indicate that all the three columns with ionic liquid as stationary phase can be used for analysis of these samples. The conditions of the method were optimized enough on all the columns.

The extraction yield into the nonpolar solvent did not increase above 86 % despite the great effort. The best of all experiments seems to be the use of n-hexane with the addition of 100 µl of water or 0,1mol/l HCl, with an average extraction of 86 %.

Key words: gas chromatography, ionic liquids, ibuprofen, ibuprofen impurities, alkylchloroformates