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Separation of Parabens by the RP HPLC on Cyanopropyl Chromatographic Phases from Different Manufacturers, using a Mobile Phase with High Water Content

O.A. Syrotchuk†, I.R. Didukh†, V.N. Zaitsev*‡

† Central laboratory for quality control of medicines and medical products, Kudryavska 10-G, 04053 Kyiv, Ukraine
‡ Pontifícia Universidade Católica do Rio de Janeiro, Rua Marquês de São Vicente 225, Rio de Janeiro, RJ – Brasil;
*e-mail: vnzaitsev@puc-rio.br

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Chromatographic phases with silica immobilized cyanopropyl fragments (CN-phases) are a modern alternative to the common octadecyl phases. They permit reduce separation time of lipophilic compounds when mobile phases with a high content of water is used and thus improve the efficiency of the chromatographic analysis and reduce its cost. However, the reproducibility of analytical techniques for separation of lipophilic compounds on the columns from different manufacturers can be problematic. Using model compounds containing phenolic, carboxyl and alkyl fragments (methyl- and propyl parabens), six chromatographic columns of different manufacturers were compared. It has been shown that the retention factors of parabens can vary up to seven times, and the value of hydrophobic selectivity of some columns is abnormally high. This indicates the non-equivalence of the columns of different manufacturers, which may be due to changing in partition mechanisms of the analytes on different CN-columns, which in turn is determined by the peculiarities of the structure of the immobilized layer.

Keywords: CN-column, methylparaben, propylparaben, HPLC