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RP-UHPLC Analysis of Novel Androstane 3-Oxime Isomers

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Abstract : The present study is focused on determination of retention behavior of two pairs of isomers from two series of synthesized androstane 3-oxime derivatives in reversed-phase ultra-high performance liquid chromatography (RP-UHPLC). The considered compounds possess significant anticancer activity toward various cancer cell lines, therefore the analysis of their physicochemical properties, including chromatographic lipophilicity, is of interest. The analysis method was developed on C18 column. Three mobile phases were used: methanol/water, methanol/acetonitrile/water and acetonitrile/water mixtures. The most significant separation of isomers from 17-picolyl series was achieved in methanol/water mixture (80/20 v/v) considering retention time and capacity factors (logk). The lowest retention time for both compounds was measured in acetonitrile/water mixture, followed by methanol/acetonitrile/water mobile phase. On the other hand, the most significant separation of the isomers from 17-picolynilidene series was achieved in ternary mixture (methanol/acetonitrile/water). The lowest retention of these two compounds was measured also in acetonitrile/water mixture. Considering in silico lipophilicity measures, which appeared to be identical for both isomers in both pairs, the determined chromatographic lipophilicity, estimated in the applied chromatographic systems, is better parameter for discrimination of the analyzed isomers. Acknowledgement: The present research is supported by the project of Provincial Secretariat for Higher Education and Scientific Research of AP Vojvodina (Molecular engineering and chemometric tools: Towards safer and greener future, No. 002902513 2024 09418 003 000 000 001 04 002).

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