

Conducting independent, efficient research depends on the knowledge and technology transfer between different fields of science affects the development of modern analytical chemistry. One of the fastest growing disciplines, which enables the analysis, secretion, qualitative and quantitative identification of analytes is a high performance liquid chromatography (HPLC). Unconventional approach to the chromatographic analysis of biologically important substances in the human body through the use of dedicated, specific, and highly selective stationary phase exhibiting quasi-membrane properties can help to model interactions between polar active substances (drugs, xenobiotics) and the cell membrane. This issue is a special interest for areas related to the wider medical and pharmaceutical chemistry.

For this reason, it seems necessary to develop a material that in the best way will give the properties of a biological membrane. N,O-dialkyl phosphoamidate (Amino-P-C18) stationary phase containing in its structure polar and hydrophobic ligands seems to fulfill this task. The chromatographic data obtained for the analyzes patterns of biologically important substances reverse phase chromatography and hydrophilic interaction chromatography, ion chromatography and using pure water as the mobile phase will be helpful in explanation of retention mechanism. Novelty of this project is the use of Amino-P C18 stationary phase as an orthogonal system over the classical octadecyl column into two-dimensional liquid chromatography system. The data obtained from chromatographic analyzes will be helpful in description of the solvation processes. In addition, research is subjected to explain the influence of individual functional groups present in the structure of the Amino-P-C18 stationary phase on the retention mechanism. This approach to the planned study will propose and complete information regarding the retention mechanism for packing materials connecting in its structure hydrophobic and polar ligands.