SOLVENT MIXTURES TOOL FOR SEPARATION OF BIOLOGICAL ACTIVE COMPOUNDS

Sorana D. BOLBOACĂ¹, Lorentz JÄNTSCHI²

¹ “Iuliu Hațieganu” Medicine and Pharmacy University of Cluj-Napoca, 400023, Cluj-Napoca, Romania, sbolboaca@umfcluj.ro
² Technical University of Cluj-Napoca, 400020 Cluj-Napoca, Romania, lori@chimie.utcluj.ro

Chromatographic mobile phase mixtures offer a great opportunity for better analytical separation in both qualitative TLC and quantitative HPLC methods. The chromatographic mobile phase preparation involves a numeric taxonomy procedure for mixture constituents selecting, based on solvent strengths, and optimization of its composition based on a series of factorial analysis designed experiments [1,2].

A set of samples containing compounds with same biological activity were investigated using previously described procedures. A mathematical model was built in order to apply the factorial analysis on given set of experiments. Following classes were subject to the investigations: steroids, androstane isomers, hydrophilic vitamins, N-alkyl phenothiazine sulfones, and benzodiazepines.

Features of the developed application are underlined, such as choosing of the mathematical model type (with six of seven unknown parameters), choosing of the desired chromatographic parameter (retention time, resolution, information energy, etc.), choosing of behavior of the objective function (minimizing of, or maximizing of), and choosing the plot characteristics (colors, domain of interest, etc.).

The application is available online and it is freely for use:

http://l.academicdirect.org/Engineering/hptlc/mobile_phase_opt/

The mobile phase optimization process proved to be able to provide accurate, precise and reproducible method on characterization and analysis of chromatographic parameters.

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References