Investigation of retention factor in micellar liquid chromatography by linear solvation energy relationships

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Linear solvation energy relationships are used to investigate the fundamental chemical interactions governing on a C_{18} column. The micellar liquid chromatographic systems using sodium lauryl sulfate and a mixture of water with methanol, n-propanol, and n-butyl alcohol were characterized using the LSER model. The ability of the LSERs to account for the chemical interactions underlying solute retention is shown and the effected of the surfactant and modifier concentration on the retention in MLC were discussed. A comparison of predicted and experimental retention factors suggests that LSER formalism is able to reproduce adequately the experimental retention factors of the solutes studied in the different experimental conditions investigated. This model is a helpful tool to understand the solute-surfactant interactions and evaluate the retention characteristic of micellar liquid chromatography.