



UNIVERSITY OF SOUTH ALABAMA

Department of Chemistry Presents Seminar Series Speaker

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Retention Mechanism of a Chromatographic Column with a Cholesterol Bonded Stationary Phase

High performance liquid chromatography (HPLC) is an analytical technique that is used to separate, identify, and quantify components in a mixture. HPLC is used in many different aspects of quantification such as quality control in the pharmaceutical industry, to analyze compounds in a mixture, and to monitor chemical reactions to name a few. During this experiment, the thermodynamic quantities of the retention mechanisms of acetophenone, 3,4-dichlorophenol, and 1,4-dichlorobenzene were analyzed using a bonded cholesterol stationary phase. These solutes were chosen because of the differing levels of polarity and hydrogen bonding which caused each solute to have varying interactions with the stationary phase. Mobile phases consisted of varying fractions of methanol and water which ranged from 80/20 methanol/water to 40/60 methanol/water. The thermodynamic factors of the retention mechanisms of the solutes were analyzed via the van't Hoff analysis. This allowed us to determine what is occurring fundamentally during the retention process which could potentially help us develop better and more efficient separation methods. This seminar will present how thermodynamic factors such as enthalpy and entropy contribute to the retention mechanism of the solutes in question.

Friday, April 30, 2021, 12:20 pm

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