

Inquiry Based Computer Exercises for Chromatography

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Chromatographic procedures are widely used in undergraduate laboratories to analyze complex mixtures or to purify a desired molecule. Most lab exercises only ask students to follow a “cookbook” method to perform a specific chromatographic procedure. This approach is effective for introducing chromatographic methods, but it does not allow students the opportunity to see how variations in chromatographic matrices and solvents affect separations. To provide an inquiry-based approach for developing a deeper understanding of basic chromatographic methods, I have created several simple, interactive computer exercises that allow students to see how chromatographic separations develop in real time while key parameters like solvent polarity, pH and ionic strength are continuously varied. Preliminary feedback from undergraduate and graduate students indicates that these exercises are useful for developing a deeper and more practical understanding of chromatography. This approach may also be applied to developing novel exercises for other analytical and preparative procedures commonly taught in undergraduate laboratories.

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