4. **Sorption Characteristics of Caffeine onto Untreated Polyurethane Foam: Application to Its Determination in Human Plasma**

Samy M. ABDEL AZEEM,* Samah ALI,**† and Mohamed F. EL-SHAHAT**
** Chemistry Department, Faculty of Science, Fayoum University, Fayoum, Egypt*
*** Chemistry Department, Faculty of Science, Ain-Shams University, Abasia Street 11566, Cairo, Egypt*
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Abstract
In the present paper, the sorption properties of caffeine (CAF) onto polyether type polyurethane foam (PUF) as solid phase sorbent were investigated with UV determination at 274.3 nm. Batch and column methods were used to optimize chemical, flow, kinetic and isothermal conditions for preconcentration of CAF. Results indicated quantitative sorption of CAF at pH 8 and 30 min shaking time. The maximum sorption capacity was found to be 4.1 mg g^{-1}. Column preconcentration was recommended at a flow rate of 1.5 mL min^{-1} and desorption with 4 mL from 0.15 mol L^{-1} hydrochloric acid. The procedure provided a linear analytical range of 0.05 – 30 mg L^{-1}. The detection and quantification limits are 0.016 and 0.047 mg L^{-1}, respectively. The procedure was applied to determination of CAF in spiked human plasma. The obtained recoveries were 98 – 101% and RSD values were from 0.05 to 9.5%.
