Synthesis carbon nanotubes as a sorbent for solid-phase extraction of formaldehyde in water sample
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Abstract: In this work, to study on synthesis multiwalled carbon nanotubes as a sorbent for development of sample pre-concentration technique by using solid-phase extraction for determination of formaldehyde in water sample with UV-Vis spectrophotometer. The important parameters influencing the extraction efficiency such as type and volume of eluent, flow rates of sample loading and eluent, volume of water samples were optimized. Under the optimum conditions, good linearity was obtained for formaldehyde ($r^2 > 0.999$). The relative standard deviation of the repeatability and reproducibility were 2.31 and 3.57 % (n=9), respectively. The limits of detection and quantification were 0.027 mg L$^{-1}$ and 0.089 mg L$^{-1}$, respectively. The proposed method was successfully applied to the analysis of market wastewater samples, and the recoveries for formaldehyde were in the range of 69-87%.

Keywords: Multiwalled carbon nanotubes; Solid-phase extraction; Formaldehyde; Market wastewater samples