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Abstract: In this paper, microsurface adsorption-spectral correction technique (MASCT) was used to research the interaction between negatively charged sodium diphenyl diazo-bis- α -naphthylamine-4-sulfonate (Congo Red, CR) and positively charged cetylpyridinium chloride (CPC) in a pH 2.03 BR buffer solution. The experiment results indicate that CR was absorbed on the surface of CPC mainly through electrostatic attraction. This aggregation obeys the Langmuir isothermal adsorption equation. The maximal binding number of CR to CPC was calculated to be 1.2 and the adsorption constant was about 2.03×10^5 L/mol. This CR-CPC binding product is insensitive to a concentrated electrolyte solution, but higher temperature influences this aggregation. By combining this reaction with the absorbance ratio difference (ARD) theory, a new method was established to determine CPC in natural water. The analytical results show that this method is suitable for the determination of trace level CPC in natural water. It is an effective method because no organic hydrophobic solvent and time consuming 2-phase extraction operation are involved. It is the first time that ARD is used for the determination of cationic surfactant, and it will be widely used in future.

Key Words: Congo Red, Microsurface adsorption-spectral correction technique, Absorbance ratio difference, Cetylpyridinium chloride

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