

عنوان مقاله:

Design selective Cu²⁺ chemo-sensor based on Bis-Azo dye for determination of Cu²⁺ in water samples

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خلاصه مقاله:

In this work, a new bis-azo dye (BAD) was synthesized and characterized by Fourier-transform infrared (FT-IR) and nuclear magnetic resonance (NMR) spectroscopy. This ligand was used for selective determination of Cu²⁺ at trace levels in the aqueous solution. In the presence of Cu²⁺, the color change of ligand from red to orange pale (under visible light) was seen. Under optimized conditions, the limit of detection and quantification were found to be 0.13 and 0.44 μM, respectively. Dynamic range was found in the concentration range of 0.6-17.5 μM with a correlation coefficient of 0.9964. This sensor was reversible and the response time was estimated nearly 6 minutes. The stoichiometric ratio between the chemosensor bis-azo dye Cu²⁺ [BAD-Cu²⁺] complex was determined to be 1:1 according Job's plot. The results showed that this sensor was successful in determining Cu²⁺ in tap and mineral water samples.

کلمات کلیدی:

Colorimetric chemosensor, metal ion determination, Bad

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