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Spectrophotometric determination of Cr(iii) and Pb(ii) using 5,11,17,23-tetra[(2-ethyl acetoethoxyphenyl) (azo) phenyl]calix[4]arene

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New complexes of 5, 11, 17, 23-tetra[(2-ethyl acetoethoxyphenyl)(azo)phenyl]calix[4]arene (TEAC) with Pb(II) and Cr(III) were prepared in basic solution with a mixture of MeOH and H_2O as solvent. The ratio of TEAC and metal ions complexation was found to be 1:1 under investigated condition. The complex formation constants (based on Benesi–Hildebrand method) for TEAC-Pb(II) and TEAC-Cr(III) were 4.03×10^4 and 1.2×10^4, respectively. Additionally, the molar extinction coefficients were 5×10^4 and 1.42×10^4 for TEAC-Pb(II) and TEAC-Cr(III), respectively. The H-point standard addition method (HPSAM) has been applied for simultaneous determination of complexes formation of Cr(III)/Pb(II) and TEAC with concentration from 2:1 to 1:20 (w/w). The proposed method was successfully utilized to invest lead and chromium content in plating wastewater samples. The results for several analyzed samples were found to be in satisfied agreement with those acquired by using the ICP-MS technique.

Biography

Le Van Tan obtained his PhD in Chemistry department in 1997 from Ha Noi National University, Vietnam. He completed his Post-doctoral in Seoul National University during 2004-2005 (Korea) and was Visiting Professor in Technical University Kaiserslautern during 2006, 2010 (Germany). He has published and presented 80 papers in International and National Conferences and journals. Currently, he is working as the Professor of this University and Professor of Chemical Engineering in Industrial University of Ho Chi Minh City. He is a member of Vietnam Chemical Society, Vietnam Analytical Chemical Society, ASC member and also Technical Committee for many international conferences on chemistry and chemical engineering in Japan, Singapore, Hong Kong, Thailand and so on. He is on Editorial Board of *Vietnam Journal of Chemistry*, Reviewer for the *International Journal of Chemical and Biomolecular Science* and many international journals on Chemistry. His interested research areas are finding new organic reagent for analytical chemistry; advanced separations and environment; postharvest technology.

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