[6] D. W. Ihm, H. Y. Woo, C. R. Hwang, , Sens. Actuators, B, 153 (2011) 421-426.
[7] T. Zhang, Y. He, R. Wang, W. Geng, L. Wang, , Sens. Actuators, B, 131 (2008) 687-691.

Potentiometric investigation of 3,5 -pyrazole dicarboxylic acid-piperazine proton-transfer system and it's complexes with Zn^{2+} ion

Ardeshir Shokrollahi*[a], Parisa Mehdizadeh-Naderi[a], Mahboubeh A. Sharif[b]

[a]*Departement of chemistry, Yasouj University, Yasouj,75918-74831, Iran*
[b]*Department of Chemistry, Islamic Azad University, Qom Branch, Qom, Iran*
Email: ashokrollahi@mail.yu.ac.ir, Tel: +98.741.2223048; fax: +98.741.2242167

In recent years many proton transfer systems including, piperazine (pipz) and different acids and their metal ion complexes were investigated in solid state and solution [1, 2], but about the interaction of this base and 3,5 -pyrazole dicarboxylic acid (pzdc) is not any report in this work the potentiometric study of this proton transfer system and Zn^{2+} complex of it is consideres.
In this study the protonation constants of pzdc and pipz in all of the probability protonated forms, the equilibrium constants for the pzdc-pipz proton transfer system and the stoichiometry and stability constant of the complexation of this system with Zn^{2+} ion in aqueous solution were investigated by potentiometric *pH* titration method.
In order to evaluate the stoichiometry and stability of Zn^{2+}complexes with the pzdc-pipz proton transfer system in aqueous solution, the equilibrium potentiometric *pH* titration profiles of pzdc, pipz and their 1:1 mixture were obtained in the absence and presence of Zn^{2+} ion.
The potentiometric pH titration curves of pzdc, pipz and their corresponding 1:1 mixture in the presence of Zn^{2+} ion were fitted by Hyperquad2008 program as a new version of the older one [3]. The corresponding distribution diagrams were depicted using Hyss2009 as a new version of Hyss program [4]. The stoichiometry of the complex species with considerable abundant in solution was compared with corresponding crystalline complex in the solid state.

References

[1] H. Aghabozorg, F. Mahfoozi, M. A. Sharif, A. Shokrollahi, S. Derki, M. Shamsipur and H. R. Khavasi, J. Iran. Chem. Soc. 7 (2010) 727-739.
[2] H. Aghabozorg, S. Daneshvar, E. Motyeian, F. Manteghi, R. Khadivi, M. Ghadermazi, A. Shokrollahi, M. Ghaedi, S. Derki and M. Shamsipur, J. Iran. Chem. Soc. 6 (2009) 620-637.
[3] P. Gans, A. sabatini, A.Vacca, Talanta, 43 (1996) 1739-1753.
[4] L. Alderighi, P. Gans, A. Ienco, D. Peters, A. Sabantini, A. Vacca, Coord. Chem. Rev. 184 (1999) 311-318.

Determination of bismuth in bismuth subcitrate tablet and water samples by reflection scanometry as a new method using iodide and thiourea reagents

Ardeshir Shokrollahi*, Tahere Mehrpour, Parisa Mehdizadeh-Naderi

Departement of chemistry, Yasouj University, Yasouj, 75918-74831, Iran
E-mail: ashokrollahi@mail.yu.ac.ir, Tel: +98.741.2223048; fax: +98.741.2242167

In this study, determination of trace amounts of bismuth by reflection scanometry as simple, cost effective, fast and selective method using iodide and thiourea reagents was described. For the first time Abbaspour and his research group's reported scanometry method for detection and determination of dopamine in bovine serum [1], development of a dopamine biosensor[2] and speciation of iron(II) and iron(III) [3]. In this method the Plexiglas cells was used instead of TLC strips in paptode [4].
In this method the cells containing the sample solution were scanned with a scanner, then the color of each cell was analyzed using software written in visual basic (VB 6) media to red, green and blue values. The cells were built by creating holes in the Plexiglas-sheet. The results showed that bismuth reacts with a large excess of I^- to form $[BiI4]^-$ [5] and forms a yellow bismuth complex $\{Bi[CS(NH_2)_2]\}(NO_3)_3$ in acid medium with thiourea [6]. The parameters including acid concentration, concentration of reagents and time which affect determination of bismuth were optimized. Under the optimum conditions, scanometric method by using iodid and thiourea reagents was linear in the range of 2-36.0 and 2-42.0 mg L^{-1}, respectively. The detection limit was obtained as 0.98 mgL^{-1} for determination of bismuth using iodid and thiourea reagents. The method was successfully applied to determine bismuth in bismuth subcitrate tablet and water samples. Good agreement was achieved between the results obtained by the proposed and comparative methods.

References

[1] A. Abbaspour, H. Valizadeh, A. Khajehzadeh, Anal. Methods, 3 (2011) 1405-1409.
[2] A. Abbaspour, A. Khajehzadeh, A. Ghaffarinejad, Analyst 134 (2009) 1692-1698.
[3] A. Abbaspour, A. Khajehzadeh and A. Ghaffarinejad, Anal. Methods 3 (2011) 2268-2272.
[4] A. Abbaspour, M. A. Mehrgardi, A. Noori, M. A. Kamyabi, A. Khalafi-Nezhad, M. N. Soltani Rad, Sens. Actuators, B, Chemical 113 (2006) 857-865.
[5] R. C. Sproull, A. O. Gettler, Ind, Eng, Chem, Anal., 13 (1941) 462-465.
[6] N. Sreevidya and SH. Mehrotra, J. AOAC Int., 86 (2003) 1124-1127.

Construction of Ion selective electrode for Yttrium(III) Based on Dibenzo-18-crown-6

Safura Sabbaghi ,Masomeh Mohajery * ,Gholam Hossein Rounaghi

Department of chemistry,Faculty of sciences,Mashhad Branch,Islamic Azad University,Mashhad,Iran

Potentiometric method based on ion selective electrodes compare with other methods of analysis have several advantages including : simplicity, speed and low cost[1]. In this work we have designed and constructed a coated membrane electrode for measuring the yttrium(III) ion activity by using dibenzo-18-crown-6 in aqueous solutions.Dibenzo-18-crown-6 (DB18C6) 3% has been used as membrane carrier (ionophore), nitrobenzene (NB) as plasticizer 65%, sodium tetraphenyl borate(NaTPB) as lipophilic anion 2% , poly vinyl chloride (PVC) 30% as matrix and tetrahydrofuran (THF) as a solvent[2]. The graphite rod was then coated by coating of the membrane with Dip/Dry method[3].The results of calibration curve for this electrode at the optimized conditions exhibit a Nernstian response of 17.5±0.5 mV for Y^{3+} ion over a wide linear dynamic range from 1×10^{-2}-1×10^{-5} M at 25°C.It was concluded that the sensor potentiometric response is independent on the pH of the solution in a wide range of 6-11 .The detection limit for this electrode is 1×10^{-7}.Furthermore,the proposed sensor presented a relatively fast response time of 30s.Concerning the electrode lifetime, no considerable potential divergence was noticed for at least 50 days. The effect of the interfering ions and the selectivity of electrode were also studied. Noticeably, the electrode revealed comparatively a good selectivity for Y(III) ions with respect to most common cations including alkali, alkaline earth, transition and heavy metal ions. This sensor was effectively used as an indicator electrode in the potentiometric titration of Y(III) ions with EDTA, NaCl, Li_2CO_3.The constructed sensor accuracy was investigated by the monitoring of Y(III) ions in mixtures of three and five different ions.