POTENTIOMETRIC SENSOR FOR ANALGIN DETERMINATION IN PHARMACEUTICAL FORMULATIONS

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References:

1. Nikolova I., Tencheva J., Voinikov J., Petkova V., Benbasat N., Danchev N. Metamizole: A Review Profile of a Well-Known “Forgotten”Drug. Part I: Pharmaceutical and Nonclinical Profile. *Biotechnology & Biotechnological Equipment*, 2012, 6, 3329-3337.
2. Kötter T., da Costa B. R., Fässler M., Blozik E., Linde K., Jüni P., Reichenbach S., Scherer M. Metamizole-Associated Adverse Events: A Systematic Review and Meta-Analysis. *Plos One*, 2015, 4, e0122918.
3. Kasatkin A.A., Urakov A.A., Lukoyanov I.A. Nonsteroidal anti-inflammatory drugs causing local inflammation of tissue at the site of injection. *J. Pharmacology & Pharmacotherap ,* 2016, 41, 26-28.
4. Jasiecka A., Maślanka T., Jaroszewski J. Pharmacological characteristics of metamizole. *Polish J. Veterin. Sci.*, 2014, 1, 207-214.
5. Srivastava M.K., Ahmad S., Singh D., Shukla I.C. Titrimetric determination of dipyrone and paracetamol with potassium hexacyanoferrate(III) in an acidic medium. *Analyst*, 1985, 110, 735-737.
6. Xiang Q., Niu G., Wu X., Chen G. Stability and Determination of Metamizole Sodium by Capillary Electrophoresis Analysis Combined with Infra-red Spectroscopy. Chem. Res. Chin. Univ. 2007, 23, 654-658.
7. Guimarães L. L., Moreira L. P., Lourenço B. F., Toma W., Zângaro R. A., Pacheco M. T. T., Silveira L. Jr. Multivariate Method Based on Raman Spectroscopy for Quantification of Dipyrone in Oral Solutions. *J. Spectroscopy*, 2018, Article ID 3538171.
8. Weiner P.L., Pezza L., Pezza H.R. A simplified reflectometric method for the rapid determination of dipirone in pharmaceutical formulations. *J. Brazil. Chem. Soc.*, 2007, 18, 846-854.
9. Salah M. Sultan, Abubakr M. Idris and Kamal E. E. Ibrahim. Sequential Injection Spectrophotometric Method for the Assay of Paracetamol in Drug Formulations. *Flow Inj. Anal.*, 2004, 1, 18–24.
10. Gavat C. C., Vasilescu L. V., Marculescu A. D. Visible Spectrophotometric Analysis Method of Sodium Metamizole in Tablets. *Rev. Chim,* 2019, 2, 475-482.
11. Raghubabu K., Kalyana R.B. Development of new visible spectrophotometric determination of analgin in bulk & formulations using p-anisidine–ferric chloride as oxidative coupling reagent. *Int. J. Anal Bioanal Chem*, 2011, 2, 53-56.
12. Vlasova V., Shilova A.V., Fokina Y.S. Spectrophotometric assay of active components in medicinal formulations using the Vierordt method for analysis of analgin-quinine and panadol extra. *Pharm. Chem J.,* 2008, 10, 49-53.
13. Qureshi S.Z., Saeed A, Hasan T. Spectrophotometric determination of novalgin in tablets by use of potassium iodate. *Talanta*, 1989, 8, 869-871.
14. Pezza L., Sakiara K.A., Melios C.B., Pezza H.R., Moraes M. Spectrophotometric determination of dipyrone in pharmaceutical preparations by using chromotropic acid. *Il Farma*co, 1999, 9, 629-635.
15. Suareza W. T., Pessoa-Netob O.D., Vicentinib F.C., Janegitzb B.C., Fariab R.C., Fatibello-Filho O. Flow injection spectrophotometric determination of dipyrone in pharmaceutical formulations using Fe(III) as reagent. *Anal. Lett.*, 2011, 44, 1-3.
16. Basáez L.A., Periĉ I.M., Jara P.A., Soto C.A., Contreras D.R., Aguirre C., Vanýsek P. Electrochemical and electrophoretic study of sodium metamizole. *J. Chil. Chem. Soc.*, 2008, 3, 1572-1575.
17. dos Santos W. T. P., Gimenes D. T., de Almeida E. G. N., Eiras S. de P., Albuquerque Y. D. T., Richter E. M. Simple Flow Injection amperometric System for Simultaneous Determination of Dipyrone and Paracetamol in Pharmaceutical Formulations. *J. Brazil. Chem. Soc.*, 2009, 7, 1249–1255.
18. Marcolino-Júnior L.H., Bergamini M.F., Teixeira M.F.S., Cavalheiro E.T.G., Fatibello-Filho O. Flow injection amperometric determination of dipyrone in pharmaceutical formulations using a carbon paste electrode. *Farmaco*, 2003, 10, 999-1004.
19. Teixeira M.F.S., Marcolino-Júnior L.H., Fatibello-Filho O., Dockal E.R., Cavalheiro E.T.G. Voltammetric determination of dipyrone using a N,N’- ethylenebis(salicylideneaminato)oxovanadium(IV) modified carbon-paste electrode. *J. Brazil. Chem. Soc.*, 2004, 6, 803-808.
20. Özdokur K.V., Koçak Ç.C. Voltammetric Determination of Metamizol Sodium in Pharmaceutical Tablets at Polypyrrole-Carbon Nanotube Modified Electrodes. *Erzincan Univers. Jour. Sci. Techn.*, 2019, 1, 317-325.
21. Elbarbry F.A., Mabrouk M.M., El-Dawy M.A. Determination of the analgesic components of spasmomigraine tablet by liquid chromatography with ultraviolet detection. J. *AOAC Intern.*, 2007, 1, 94-101.
22. Kadam N.N., Patil P.C., Singh R.R. A stability indicating RP-HPLC determination of camylofin dihydrochloride in drug substance. *Intern. J. Pharm. Pharm. Sci.*, 2011, 3, 153-158.

23. Ali N. W., Gamal M., Abdelkawy M. Simultanous determination of hyoscine butyl bromide and dipyrone in their binary mixture by RP-TLC spectrodensitometric method. *Intern. J. Chem. Anal. Sci.*, 2012, 10, 1578-1582.
24. Senyuva H. Z., Aksahin I., Ozcan S., Kabasakal B. V.. Rapid, simple and accurate liquid chromatography–diode array detection validated method for the determination of dipyrone in solid and liquid dosage forms. *Anal. Chim. Acta*, 2005, 547, 73-77.
25. Kormosh Z. Savchuk, T. Potentiometric sensor for povidone-iodine determination. *Pharm. Chem. J.*, 2016, 8, 59-60.
26. Kormosh Z., Savchuk T., Bazel Y., Kormosh N., Zyma S. Potentiometric sensor for the determination of povidone-iodine, *Anal. Bioanal. Electrochem.*, 2014, 3, 367-378.
27. Kormosh Z., Savchuk, T. A potentiometric sensor for assay of selenium (IV), *Pharm. Chem. J.*, 2012, 3, 196-198.
28. Kormosh Z., Savchuk T., Korolchuk S., Bazel Y. Design and application of a triiodide-selective membrane electrode. *Electroanalysis*, 2011, 9, 2144-2147.
29. Kormosh Zh., Savchuk T. New potentiometric sensor for the determination of iodine species. *Mater. Sci. Eng. C*, 2012, 8, 2286-2291.
30. Yilmaz V. T., Karadag A. Thermal decomposition of Hofman-type complexes of di-and triethanolamine, *Termochim. Acta*, 2000, 348, 121–127.
31. Державна Фармакопея України: в 3 т. / Укр. наук. фармакопейний центр якості лікарських засобів. – 2-ге вид. – Х. : Держ. п-во «Укр. наук. фармакопейний центр якості лікарських засобів», 2014, 2, 442.