

THE OXIDATIVE DERIVATIZATION METHOD FOR THE INDIRECT SPECTROPHOTOMETRIC DETERMINATION OF PROCHLORPERAZINE IN TABLETS

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References:

1. Budavari, S.; The Merck index: An Encyclopedia of Chemicals, Drugs and Biologicals. 13th ed. Whitehouse Station (NJ): Merck Research Lab, Division of Merck; 2001.7850. Sweetman SC, editor. Martindale: The complete drug reference. 33rd ed. London: Pharmaceutical Press; **2002**. 701–702.
2. Basavaiah, K.; Manjunatha, J.M.; Krishnamurthy, G.; Quantitation of pharmaceutically important phenothiazines by oxidimetry. *II Farmaco*. **2000**, 55, 87-92. DOI: 10.1016/S0014-827X(99)00122-6.
3. Kowalczyk-Marzec, A.; Kurzawa, M.; Szydłowska-Czerniak, A.; Szlyk, E. Conductometric determination of phenothiazine derivatives by precipitation titration. *Chemia analityczna (Warsaw)*, **2002**, 47(4), 613-618.
4. Basavaiah K., Swamy J.M., Titrimetric microdetermination of some phenothiazine neuroleptics with potassium hexacyanoferrate. *Talanta*. **1998**, 47(1), 59-66. doi.org/10.1016/S0039-9140(98)00057-5
5. Shirsand, S.B.; Suresh, S.; Swamy, P.V.; Para, M.S.; Nagendra, D.K.; Formulation Design of Fast Disintegrating Tablets Using Disintegrant Blends. *Indian J Pharm Sci*. **2010**, 72(1), 130–133. doi: 10.4103/0250-474X.62244
6. Shirsand, S. B.; Suresh, S.; Swamy, P.V. Formulation design of novel fast disintegrating tablets of prochlorperazine maleate. *Int. J. Pharm Tech Res*. **2010**, 2(1), 125-129.
7. Zare, F.; Mohammadloo, Z.B. Survey Spectrophotometric Method for Determination of Phenothiazine Drug. *Nat. Sci*. **2016**, 14(10), 1-5. DOI:10.7537/marsnsj141016.01.
8. Upadhyay, K.; Asthana, A.; Tamrakar, R.K. Sensitive spectrophotometric method for determination of some phenothiazine drugs. *Res. Chem. Intermediates*. **2015**, 41(10), 7481-7495. DOI: 10.1007/s11164-014-1838-8.
9. Bhagwat, G.B.; Sonawane, P.T.; Bopinwar, V.V. Determination of Prochlorperazine Maleate and Pyridoxine Hydrochloride in Combined Tablet Dosage form by using first order derivative Spectrophotometric method. *J. Sci. Tech*. **2012**; 4(6), 262-266.
10. Bhagwat, G.B.; Wate S.P.; Mundhey, A.S. Development and Validation of UV Spectrophotometric Method for Estimation of Prochlorperazine Maleate and Pyridoxine Hydrochloride in Tablet Dosage Form by UV Using Multi-Component Mode of Analysis. *Indian drugs*. **2013**; 50(3), 20-25.
11. Puzanowska-Tarasiewicz, H.; Karpin'ska, J.; Kuz'micka, L.; Analytical Applications of Reactions of Iron(III) and Hexacyanoferrate(III) with 2,10-Disubstituted Phenothiazines. *Int. J. Anal. Chem*. **2009**, 1-8 DOI:10.1155/2009/302696
12. Theia'a, N.; Al-Talib, S.M. Spectrophotometric determination of some phenothiazines using N-chloro-succinimide. *Rafidain journal of science*, **2009**. 20(4E), 27-37.
13. Revanasiddappa, H.D.; Veena, M.A. Spectrophotometric determination of some phenothiazine drugs using chloramine-T-iodine-starch. *J. Anal. Chem*. **2008**, 63(2), 140-144. doi.org/10.1134/S1061934808020068
14. Basavaiah, K. Indirect spectrophotometric determination of some biologically important phenothiazines using potassium dichromate, iron(II) and 1,10-phenanthroline. *Indian J. Chem. Tech*. **2004**, 11(5), 632-638.
15. Aman, T.; Anwar, J.; Ahmad, A.; Latif, L. Determination of Five Phenothiazines in Pure and Pharmaceutical Preparations Using Vanadium Pentoxide as a Chromogenic Reagent. *Anal. Lett*. **2003**, 36(14), 2961-2974. DOI: 10.1081/AL-120026414
16. Basavaiah, K.; Swamy, J.M. Application of potassium dichromate and iron-thiocyanate in the spectrophotometric investigations of phenothiazines. *II Farmaco*. **2001**, 56(8), 579–585. doi.org/10.1016/S0014-827X(01)01096-5
17. Aman, T.; Majeed, Z.; Kazi, A.A.; Khan, I.U. Spectrophotometric Determination of Prochlorperazine Maleate in Pure and Pharmaceutical Preparations. *Mikrochim. Acta*. **2002**, 138(1-2), 13-17. doi.org/10.1007/s006040200001
18. Gaiduk, O.V.; Pantaler, R.P.; Blank, A.B. A New Catalytic Reaction for Determining Phenothiazine Derivatives. *J. Anal. Chem*. **2004**, 59(7), 768–772. DOI: 10.1023/B:JANC.0000035284.55280.0b
19. Progress in Chemical Toxicology. V.5 / Ed. Stolman, A. Elsevier, **2013**. 406 p.
20. Nesměrák, K.; Červený, V.; Hraníček, J.; Rychlovský, P.A Spectrofluorimetric determination of phenothiazine derivatives after their photooxidation or chemical or electrochemical oxidation in a flow injection arrangement. *Microchem. J*. **2013**, 106, 226–232. doi.org/10.1016/j.microc.2012.07.006
21. Yung, G.J.; Qu, X.L.; Ming, M.; Qu, Q.S.; Wang, C.Y.; Zhu, A.P.; Hu, A.Y.: Trace measurement of phenothiazine drugs in tablets by micellar enhanced fluorophotometric method. *J. Fluoresc*. **2007**, 17, 119–126. doi.org/10.1007/s10895-007-0165-5
22. Mohamed A.M.; Abdelmageed, O.H.; Salem, H.; Nagy, D.M.; Omar, M.A. Spectrofluorimetric determination of certain biologically active phenothiazines in commercial dosage forms and human plasma. *Luminescence*. **2013**. 28(3), 345-54. DOI: 10.1002/bio.2388.

23. Blazheyevskiy M.Ye. Application of derivatization by means of peroxy acid oxidation reaction in pharmaceutical analysis. *Farmacom*. **2016**, 3, 28-40.
24. Yang, Y.; Peng, Y.; Zhao, F.; Zeng, B. Voltammetric determination of prochlorperazine and ethopropazine using a gold electrode modified with decanethiol SAM. *Sensors*, **2003**, 3(11), 524-533. DOI: 10.3390/s31100524
25. Mielech-Łukasiewicz, K.; Puzanowska-Tarasiewicz, H.; Panuszko, A. Electrochemical Oxidation of Phenothiazine Derivatives at Glassy Carbon Electrodes and Their Differential Pulse and Square-wave Voltammetric Determination in Pharmaceuticals. *Anal. Lett.* **2008**, 41(5), 789-805. DOI: 10.1080/00032710801935038
26. Kishorkumar L Mule. Rapid analytical method for assay determination for prochlorperazine edisylate drug substances by ultraperformance liquid chromatography. *Int J Curr Pharm Res*. **2017**; 9(4), 118-122.
27. Trawiński, R.S. Studies on photodegradation process of psychotropic drugs: a review. *Environ. Sci. Pollut. Res. Int.* **2017**, 24(2), 1152-1199. DOI: 10.1007/s11356-016-7727-5.
28. Tu, Y.Y.; Hsieh, M.M.; Chang, S.Y. Sensitive detection of piperazinyl phenothiazine drugs by field-amplified sample stacking in capillary electrophoresis with dispersive liquid-liquid microextraction. *Electrophoresis*. **2015**, 36 (21-22), 2828-2836. DOI: 10.1002/elps.201500260.
29. Dhabab, J.M.; Al-Ameri, S.A.; Taufeeq, A.H. Separation and determination of trifluoperazine and prochlorperazine in pharmaceutical preparations by HPLC. *Arab Uni. Basic App. Sci.*, **2013**, 13(1), 14-18.
30. Bhosale, D.; Nikalje, A. Development and validation of RP-chromatography for simultaneous determination of paracetamol, caffeine, ergotamine and Prochlorperazine in tablets, *AJPS*, **2012**; 7(5), 364-370.
31. Tashiro, M.; Naito, T.; Kagawa, Y.; Kawakami, J. Simultaneous determination of Prochlorperazine and its metabolites in human plasma using isocratic liquid chromatography tandem mass spectrometry. *Biomed Chrom.* **2012**, 26(6), 754-60. DOI: 10.1002/bmc.1725.
32. Yan, M.; Zhu, Y.G.; Chen, B.M.; Ma, N.; Lei, Y.Q.; Liu, Y.P. Quantification of prochlorperazine maleate in human plasma by liquid chromatography-mass spectrometry: Application to a bioequivalence study. *J. Chrom. B*. **2009**. 877(27), 3243-3247. DOI: 10.1016/j.jchromb.2009.07.038.
33. Khanage, S.G.; Mohite, P.B.; Dudhade, M.R.; Deshmukh, V.K. Separation and Determination of Prochlorperazine Maleate and Pyridoxine Hydrochloride in Tablet Formulation by RP-HPLC. *Austin J Anal Pharm Chem*. **2014**, 1(3) 1012.
34. Venkatesh, D.; Sundaram, S.; Meyyanathan, S.; Muralidharan, S.; Shanmugam, R.; Kannan, E.; Bhojraj, S.; Santhi, S. Bioavailability Studies on Developed Prochlorperazine Maleate Sustained Release Tablets by HPLC, *JBABM*, **2009**, 1, 54-57. doi:10.4172/1948-593X.1000012
35. Patel Vishvas D., Patel Paresh U. Development and validation of reverse phase high performance liquid chromatography method for simultaneous estimation of betahistine dihydrochloride and prochlorperazine maleate in tablet dosage form. *Int. J. Pharm. Drug. Anal.* **2014**, 2(4). 369-374.
36. The United States Pharmacopeia, Thirty-Ninth Revision, and The National Formulary, Thirty-Fourth Edition. The United States Pharmacopeial Convention 12601 Twinbrook Parkway, Rockville
37. Blazheyevskiy, M.Ye. Application of derivatization by means of peroxy acid oxidation and perhydrolysis reactions in pharmaceutical analysis. Lviv: Ivan Franko National University of Lviv, **2017**. 106 p.
38. Blazheyevskiy, M.Ye. Spectrophotometric and spectrofluorimetric determination of the 2- and 10-disubstituted phenothiazines using peroxy acid oxidation. *Current topics in analytical chemistry*. **2019**. 11, 67-80.