

METHODS OF SPECTROPHOTOMETRIC DETERMINATION OF  
SULPHANILAMIDES. REVIEWM.YA. SMOLINSKA, O.YA. KORKUNA, I.YA. KOTSIUMBAS,  
T.YA. VRUBLEVSKA, G.YU. TESLYAR

## References:

1. Belikov V.G. Farmatsevticheskaya khimiya. V 2 ch. Uchebnoï posobie. 4-e izd., pererab. i dop. Moskva: MEDpress-inform, 2007.
2. Yatusovich A.I., Tolkach N.G., Yatusovich I.A., Pankovets E.A. Lekarstvennye sredstva v veterinarii. Spravochnik. Minsk, 2006.
3. The Merck Index. 11-th, N.J., USA: Merck&Co., Inc., 1989.
4. Arzamastsev A.P. Farmatsevticheskaya khimiya: Ucheb. Posobie. Moskva.: GOETAR-MED, 2004.
5. Belousov Ju.B. Klinicheskaja farmakologija. Rukovodstvo dlja vrachej – izd. 2-e ispr. i dop. / Ju.B. Belousov, V.S. Moiseev, V.K. Lepahin.– M.:Universum Pabliching, 1997.
6. Derzhavna Farmakopeja Ukraïny v 3 t. Druge vydannja. DP. «Ukraïns'kyi naukovyj farmakopejnyj centr jakosti likars'kyh zasobiv». Harkiv. 2014, 2015.
7. European Pharmacopoeia (Eur. Ph). 8-th Ed., Strasbourg: Council of Europe, 2016.
8. The British Pharmacopoeia (BP), Intern. Ed. London: H.M. Stationary Office, 2013.
9. United States Pharmacopeia, USP 40-NF 35 Convention Inc., Rockville, The United States Pharmacopoeial Convention, 2016.
10. Agarwal V.K. *J. Chromatogr. A*, 1992, 624(1–2), 411–423.
11. Wang S., Zhang H.Y., Wang L., *Food Addit. Contam.*, 2006, 23(4), 362–384.
12. Garcia-Campana A.M., Gamiz-Gracia L., Lara F.J., Del Olmo Iruela M., Cruces-Blanco C. *Anal. Bioanal. Chem.*, 2009, 395(4), 967–986.
13. Pastor-Navarro N., Maquieira A., Puchades R. *Anal. Bioanal. Chem.*, 2009, 395(4), 907–920.
14. Nesterenko I.S., Nokel M.A., Eremin S.A. *J. Anal. Chem.*, 2009., 64(5), 435–444 (in Russ.).
15. Trius N.V., Chichiro V.E., Bokovikova T.N., Goizman M.S., Kachmar I., Kachmarova I. *Khim.-farm. zhurnal*, 1991, 2, 72–75 (in Russ.).
16. Maksyutina N.P., Kagan F.E., Mitchenko F.A., Kirichenko L.A., Koget T.A. Analiz farmatsevticheskikh preparatov i lekarstvennykh form. Kiev: Zdorov'ya, 1976. C. 112.
17. Chernova P.K., Gusakova H.H., Borisova G.M., Mas'ko L.I., Legoshina S.G. Sovremennoe sostoyanie analiticheskoi khimii sul'fanilamidnykh preparatov. Saratov: Sarat. un-t., 1990. 158 c.
18. Bratton A.C., Marshall E.K. *J. Biol. Chem.*, 1939, 128, 537–550.
19. Marshall E.K. *J. Biol. Chem.*, 1937, 122, 263–273.
20. Fuller A.T. *The Lancet*, 1937, 229(5917), 194–198.
21. Scudi J.V. *J. Biol. Chem.*, 1937, 122, 539–547.
22. Morris C.J.O. *Biochem. J.*, 1941, 35(8–9), 952–959.
23. Werner A.E.A. *The Lancet*, 1939, 233(6019), 18–20.
24. Schmidt E.G. *J. Biol. Chem.*, 1937, 126, 757–762.
25. Karel L., Chapman C.W. *J. Biol. Chem.*, 1944, 155, 27–32.
26. Chichiro V.E., Arzamastsev A.P., Suranova A.V., Trius N.V., Luttseva N.I., Evdokimova V.V., Gerasimova G.A. *Khim.-farm. zhurnal*, 1983, 11, 1389–1394 (in Russ.).
27. Chichiro V.E., Arzamastsev A.P., Trius N.V., Suranova A.V., Luttseva I.I., Evdokimova V.V. *Khim.-farm. zhurnal*, 1982, 3, 109–112 (in Russ.).
28. Atiya M.A., Ivanova L.A., Nekrasov V.I. *Farmatsiya*, 1978, 27(2), 52–53 (in Russ.).
29. Kagan F.G. *Farm. zhurnal*, 1966, 6, 14–17 (in Ukr.).
30. Belikov V.G., Stepanyuk S.N., Baikova G.F. *Farmatsiya*, 1980, 29(3), 37–40 (in Russ.).
31. Tiraspol'skaya S.G., Nazarova L.E., Skibina V.V. *Farmatsiya*, 1984, 33(1), 67–69 (in Russ.).
32. Sadagopa Ramanujam V.M., Netkal Made Gowda M., Norman Trieff M., Legator Marvin S. *Microchem. J.*, 1980, 25(3), 295–300.
33. Rapaport L.I., Shakh Ts.I. *Farm. zhurnal*, 1966, 6, 22–27 (in Ukr.).
34. Chichiro V.E., Semeikina L.A. *Farmatsiya*, 1970, 19(4), 43–45 (in Russ.).
35. Chichiro V.E., Arzamastsev A.P., Trius N.V., Suranova A.V., Sadchikova N.P. *Khim.-farm. zhurnal*, 1981, 9, 106–111 (in Russ.).
36. Belousova G.M., Prokhorenko M.D., Kaganskii M.M. *Khim.-farm. zhurnal*, 1971, 10, 51–53 (in Russ.).
37. Shumeiko V.A., Grin' V.O. *Farm. zhurnal*, 1976, 3, 75–76 (in Ukr.).
38. Vandana K., Kumar Dash A., Kothapalli U., Shiva Kishore T., Harika L., Kumar Pradhan K. *Int. J. Pharm. Biol. Arch.*, 2011, 2(4), 1167–1171.

39. Melent'eva G.A., Tyzhigirova V.V. *Farmatsiya*, 1982, 31(5), 26–29 (in Russ.).
40. Alatas F., Wulansari D. *Proceeding of the International Seminar on Chemistry*, 2008, 389–392
41. Meena S., Sandhya S.M. *Asian J. Pharm. Clin. Res.*, 2013, 6(3), 121–123.
42. Al-Nuri I.J., Al-Obaydi I.A. *J. Raf. Sci.*, 2009, 20(4), 17–26.
43. Berzas Nevado J.J., Salinas F., De Orbe Paya I., Capitan-Vallveys L.F. *J. Pharm. Biomed.*, 1991, 9(2), 117–122.
44. Othman S. *Int. J. Pharm.*, 1990, 63(2), 173–176.
45. Granero G., Garnero C., Longhi M. *J. Pharm. Biomed.*, 2002, 29(1–2), 51–59.
46. Medina J.R., Miranda M., Hurtado M., Dominguez-Ramirez A.M., Ruiz-Segura J.C. *Int. J. Pharm. Pharm. Sci.*, 2013, 5(4), 505–510.
47. Nalewajko E., Moreno Galvez A., Gomez Benito C., Martinez Calatayud J. *J. Flow Injection Anal.*, 2003, 20(1), 75–80.
48. Hismiogullario S.E., Yarsan E. *Hacettepe University J. Fac. Pharm.*, 2009, 29(2), 95–104.
49. Sohrabi M.R., Fathabadi M., Nouri A.H. *J. App. Chem. Res.*, 2010, 3(12), 47–52
50. Goodarzi M., Shahbazikhah P., Sohrabi M.R., Fathabadi M., Nouri S.H. *J. Chil. Chem. Soc.*, 2009, 54(3), 309–313.
51. Ribone M.E., Pagani A.P., Goicoechea H.C., Olivieri A.C. *Chem. Educator*, 2000, 5(5), 236–241
52. Pushpa Latha E, Nagendra Kumar Guptha CV, Abiram L. *Int. Res J. Pharm. App. Sci.*, 2011, 1(1), 61–67.
53. Ni Y., Qi Z., Kokot S. *Chemometr. Intell. Lab. Systems*, 2006, 82, 241–247.
54. Lopez-Martinez L., Lopez-de-Alba P.L., De-Leon-Rodriguez L.M., Yopez-Murrieta M.L. *J. Pharm Biomed. Anal.*, 2002, 30(1), 77–85.
55. Zimmer L., Czarneski W. *Annales Universitatis Mariae Curie-Sklodovska. Lublin-Polonia. Section DDD*, 2010, 23(1), 27–36
56. Berzas Nevado J.J., Lemus Gallego J.M., Castareda Peaalvo G. *J. Pharm. Biomed. Anal.*, 1993, 11(7), 601–607.
57. Salinas F., Mansilla A.E., Berzas Nevado J.J. *Microchem. J.*, 1991, 43(3), 244–252.
58. Vivaja Raja G., Bala Sekaran C., Winnie Teja D., Madhuri B., Jajasree B. *E-J. Chem.*, 2009, 6(2), 357–360.
59. Nagamalleswari G., Phaneendra D., Prabakar A.E., Suresh P.V., Ramarao N. *Int. J. Adv. Pharm. Anal.*, 2013, 3(2), 30–36.
60. Filipeva S.A., Strelets L.N., Petrenko V.V., Buryak V.P. *Farmatsiya*, 1987, 36(8), 39–41 (in Russ.).
61. Amal H., Demir S. *J. Fac. Pharm. Istanbul*, 1968, 4, 28–30.
62. Mohamed A.M.I., Askal H.F., Saleh G.A. *J. Pharm. Biomed. Anal.*, 1991, 9(7), 531–538.
63. Sadivskii V.M., Petrenko V.V. *Farmatsiya*, 1993, 42(3), 53–54 (in Russ.).
64. Amin A.S., Zareh M.M. *Mikrochim. Acta*, 1996, 124(3–4), 227–233.
65. Pat. 1559273, Rossiya, MPK 51, G01N 21/78. Solomonova S.G., Rybalka N.G., Artemchenko S.S., Keitlin I.M., Petrenko V.V., Siryachenko O.V. Opubl. 23.04.1990, Byul. №15 (in Russ.).
66. Artemchenko S.S., Solomonova S.G., Petrenko V.V., Keitlin I.M., Baranova N.V. *Farm. zhurnal*, 1990, 10, 66–67 (in Ukr.).
67. Norman M.T., Sadagopa Ramanujam V.M., Cantelli G.F. *Talanta*, 1977, 24(3), 188–190.
68. Nour El-Dien F.A., Mohamed G.G., Khaled E., Frag E.Y.Z. *J. Adv. Res.*, 2010, 1, 215–220
69. Vartanyan S.V., Galoyan K.A., Khachatryan A.G. *Uchenye zapiski Erevanskogo Gosudarstvennogo universiteta*, 2008, 1, 85–89 (in Russ.).
70. Sharma S., Sharma M.C. *American-Eurasian J. Sci. Res.*, 2011, 6(4), 205–209.
71. Betageri V.S., Kulkarni R.M., Shivaprasad K.H., Shivshankar L.M. *Der Pharma Chemica*, 2011, 3(2), 227–235.
72. Al-Tae O.A. *J. Edu. Sci.*, 2012, 25(4), 47–60.
73. Al-Attas A.S. *Saudi Pharm. J.*, 2003, 11(3), 141–145.
74. El-Dien F.A.N., Mohamed G.G., Frag E.Y. *Chem. Papers*, 2009, 63(6), 646–653.
75. Onah J.O., Odeiani J.E. *J. Pharm. Biomed.*, 2002, 30(3), 851–857.
76. Hasan M.A., Ibrahim H.A., Al-Sabha T.N. *J. Adv. Chem.*, 2014, 9(1), 1798–1809.
77. Al-Ghabsha T.S., Al-Sabha T.N., Al-Enizzi M.S. *J. Edu. Sci.*, 2013, 26(4), 56–67.
78. Petrenko V.V. *Zhurn. anali. khimii*, 1980, 35(1), 200–202 (in Russ.).
79. Petrenko V.V., Deryugina L.I. *Farmatsiya*, 1983, 32(4), 38–40 (in Russ.).
80. Issa Y.M., Amin A.S. *Anal. Lett.*, 1994, 27(6), 1147–1158.
81. Amin A.S. El-Sayed G.O., Issa Y.M. *Microchem. J.*, 1995, 51(3), 367–373.
82. Siddappa K., Tambe M., Metre M., Kote M. *J. Pharm. Res.*, 2011, 4(2), 308–311.
83. Vaid F.H.M., Aminuddin M., Mehmood K. *Pakistan J. Pharm. Sci.*, 2004, 17(2), 77–84.
84. Klokova E.V., Dmitrienko S.G. *Vestn. Mosk. un-ta. Ser. 2. Khimiya*, 2008, 49(5), 339–343 (in Russ.).
85. Green M.D., Mount D.L., Todd G.D. *Analyst*, 1995, 120(10), 2623–2626.

86. Pat. 1817008, Rossiya, MPK 51, G01N 21/78. Chernova R.K., Gusakova N.N., Borisova G.M., Mas'ko L.I., Kosheleva L.G. Opubl. 23.05.1993, Byul. №19 (in Russ.).
87. El-Kommos M.E., Emara K.M. *Analyst*, 1988, 111(1), 133–137.
88. Othman N.S., Kadder R.M. *Raf. J. Sci.*, 2006, 17(4), 92–103.
89. Nagaraja P., Shrestha A.K., Kumar A.S., Gowda A.K. *Acta Pharm.*, 2010, 60(2), 217–227.
90. Verma K.K., Stewart K.K. *Anal. Chim. Acta*, 1988, 214, 207–216.
91. Abdine H., Korany M.A., Wahbi A.M., El-Yazbi F. *Talanta*, 1979, 26(11), 1046–1048.
92. Azeez Y.J., Al-Abachi M.Q., Shakir I.M.A. *Nat. J. Chem.*, 2006, 23, 281–293.
93. Mohamed F.A., Mohamed A.I., El-Shabouri S.R. *J. Pharm. Biomed.*, 1988, 6(2), 175–183.
94. Al-Abachi M.Q., Salih E.S., Salem M.S. *Fresen J. Anal. Chem.*, 1990, 337(4), 408–411.
95. Fogg A.G., Fayad N.M. *Anal. Chim. Acta*, 1979, 106(2), 365–367.
96. Sastry C.S.P., Srinivas K.R., Krishna Prasad K.M.M. *Talanta*, 1996, 43(10), 1625–1632.
97. Kalashnikov V.P., Dolotova T.M., Minka A.F. *Farm. zhurnal*, 1999, 5, 69–71 (in Ukr.).
98. Pat. 2488110, Rossiya, MPK 51, G01N 33/15, G01N 31/22. Kalashnikov V.P., Slivkin A.I. Opubl. 20.07.2013, Byul. №20 (in Russ.).
99. Vijaya Raja G. Bala Sekaran C., Siva Kumari P. *Orient. J. Chem.*, 2008, 24(3), 1021–1024.
100. Evgen'ev M.I., Garmonov S.Yu., Shakirova L.Sh., Levinson F.S. *J. Anal. Chem.*, 2000, 55(8), 799–805 (in Russ.).
101. Stewart J.T., Ray A.B., Fackler W.B. *J. Pharm. Sci.*, 1969, 58(10), 1261–1262.
102. Gaidukevich O.M., Makhida Sidom B., Bezuglii V.D. *Farm. zhurnal*, 1978, 1, 63–67 (in Ukr.).
103. Gaidukevich O.M., Borodai I.V. *Farm. zhurnal*, 1980, 6, 23–26 (in Ukr.).
104. Sharma S., Neog M., Prajapati V., Patel H., Dabhi D. *E-J. Chem.*, 2010, 7(4), 1246–1253.
105. Romero A.M., Benito C.G., Calatayud J.M. *Anal. Chim. Acta*, 1995, 308(3), 451–456.
106. Sharma S., Neog M., Dabhi D. *Int. J. Pharm. Sci. Drug Res.*, 2010, 2(3), 204–209.
107. Salinas F., Espinosa Mansilla A. *Anal. Chim. Acta*, 1990, 233, 289–294.
108. Nagaraja P., Sunitha K.R., Vasantha R.A., Yathirajan H.S. *Eur. J. Pharm. Biopharm*, 2002, 53(1), 187–192.
109. El-Sayed Metwally M. *Anal. Sci.*, 1999, 15(10), 979–984.
110. Azeez Y.J. *Wasit J. Sci. Med.*, 2009, 2(1), 30–38.
111. Khalaf H.S., Al-Haidari A.M.A., Dikran S.B., Mohammed Al.K. *Ibn Al-Haitham J. Pure & Appl. Sci.*, 2014, 27(3), 365–380.
112. Nagaraja P., Yathirajan H.S., Sunitha K.R., Vasantha R.A. *J. AOAC Int.*, 2002, 85(4), 234–250.
113. Nagaraja P., Yathirajan H.S., Raju C.R., Vasantha R.A., Nagendra P., Hemantha Kumar M.S. *Il Farmaco*, 2003, 58(12), 1295–1300.
114. Taha I.A. *Raf. J. Sci.*, 2005, 16(3), 7–14.
115. Ahmed R.K., Salman M.K., Hamed A.H., Dhahir S.A. *Baghdad Sci. J.*, 2010, 7(1), 607–613.
116. Othman N.S., Kadder R.M. *Raf. J. Sci.*, 2006, 17(4), 25–35.
117. Popov D.M., Litvin A.A. *Khim.-farm. zhurnal*, 1980, 24(10), 108–111 (in Russ.).
118. Ansari M.T., Ansari T.M., Raza A., Ashraf M., Yar M. *Chem. Anal.*, 2008, 53, 305–313.
119. Shamsa F., Amani L. *Iranian J. Pharm. Res.*, 2006, 1(1), 31–36.
120. Othman N.S. *J. Edu. Sci.*, 2005, 17(2), 32–40.
121. Minka A.F., Shkadova A.F., Kopiichuk I.I. *Farm. zhurnal*, 1987, 1, 38–40 (in Ukr.).
122. Sabry S.S. *Anal. Lett.*, 2006, 39(13), 2591–2615.
123. Nagaraja P., Naik S.D., Sherestha A., Shivakumar A. *Acta Pharm.*, 2007, 57(3), 333–342.
124. Ellaihy M.M., El-Khateeb S.Z., El-Tarras M.F. *Microchem. J.*, 1986, 33(2), 168–171.
125. Mohammed S.A., Zebary H.Y.S. *Raf. J. Sci.*, 2013, 24(6), 61–73.
126. Alykov N.M., Zhukova O.S., Bubnova V.V., Bubnova N.V., Deikina E.V. *Nauchnyi potentsial regionov na sluzhbu modernizatsii. Astrakhan': AISI*, 2012, 3(2), 11–14 (in Russ.).
127. Pat. 2419091, Rossiya, MPK 51, G01N 33/15, G01N 21/78. Alykov N.M., Deikina E.V. Opubl. 20.05.2011, Byul. №14 (in Russ.).
128. Darweesh S.A., Al-Haidari I.M.A., Dikran S.B., Mohammed A.K. *Iraqi Nat. J. Chem.*, 2014, 53, 20–35.
129. Darweesh S.A., Al-Haidari I.M.A., Mohammed A.K., Dikran S.B. *Ibn Al-Haitham J. Pure & Appl. Sci.*, 2013, 26(3), 281–295.
130. Nagaraja P., Sunitha K.R., Vasantha R.A., Yathirajan H.S. *Indian J. Pharm. Sci.*, 2002, 644(4), 391–393.
131. Upadhyay K., Asthana A., Tiwari N. *Asian J. Pharm. Clin. Res.*, 2012, 5(2), 222–226.
132. Boiko M., Vrublevska T., Korkuna O., Teslyar G. *Spectrochim. Acta A*, 2011, 79A(2), 325–331.
133. Boiko M., Vrublevs'ka T., Korkuna O., Teslyar G. *Visn. L'viv. Un-tu. Seriya Khimiya*, 2011, 52, 174–183 (in Ukr.).
134. Boiko M., Vrublevs'ka T., Korkuna O., Teslyar G. *Visn. NU «L'vivs'ka politekhnika» «Khimiya, tekhnologiya rechovin ta ikh zastosuvannya»*, 2011, 700, 89–94 (in Ukr.).

- 135.Pat. 201009544, Ukraïna, MPK 51, G01N 21/75, G01N 21/78. Boiko M.Ya., Vrublevs'ka T.Ya., Korkuna O.Ya., Kotsyumbas I.Ya., Yanovich D.V., Teslyar G.Yu. Opubl. 10.03.2011, Byul. №5 (in Ukr.).
- 136.Boiko M., Vrublevs'kaya T., Korkuna O., Kotsyumbas I., Teslyar G. *Vopr. Khim. Khimtekhnol.*, 2012, 2, 116–126 (in Russ.).
- 137.Boiko M., Vrublevs'kaya T., Korkuna O., Teslyar G., Yanovich D. *Zav. Lab.*, 2012, 28(11), 19–24 (in Russ.).
- 138.Smolinska M., Korkuna O., Rudchuk P., Vrublevska T., Teslyar G. *Open Chem.*, 2015, 13, 1254–1268.
- 139.Smolinska M., Korkuna O., Vrublevska T., Teslyar G. *Chem. Chem. Technol.*, 2015, 9(4), 401–410.
- 140.Boiko M., Korkuna O., Vrublevs'ka T., Teslyar G. *Metodi ta ob'ekti khimichnogo analizu*, 2014, 9(2), 73–82.
- 141.Boiko M., Korkuna O., Vrublevs'ka T., Teslyar G. *Visn. L'viv. Un-tu. Seriya Khimiya*, 2014, 55(1), 232–248 (in Ukr.).
- 142.Tsollinger G. *Khimiya azokrasitelei. Per.s nem. Porai-Koshits B.A. Leningrad: Goskhimizdat*, 1960. C. 160–169.
- 143.Boiko M.Ya., Kotsyumbas I.Ya., Korkuna O.Ya., Melikyan S.M., Vrublevs'ka T.Ya., Teslyar G.Yu. *Farm. chasopis*, 2014, 31(3), 50–55 (in Ukr.).
- 144.Boiko M., Vrublevska T., Korkuna O., Kotsyumbas I., Teslyar G., Smalyukh O. *Farm. zhurnal*, 2012, 2, 50–59 (in Ukr.).
- 145.Korkuna O., Smolins'ka M., Vrublevs'ka T. *Visn. L'viv. Un-tu. Seriya Khimiya*, 2015, 56(1), 168–178 (in Ukr.).