



บรรณานุกรม

1. CIBA Ltd. "Dyeing and Printing of Textiles." Belgium patent 664,282 through C.A. 65: P7350d
2. Hen, R.W. and Bernadette, D.M. : "A Gold Protective Treatment for Microfilm." Phot. Sci. Eng. 9(1965) : 147 - 8 through C.A. 64 : 4899h
3. Reeves, W.A., et.al. "Phosphorus and Nitrogen - Containing Compounds and Polymers and Flame Proofing Organic Textiles." U.S. patent 306, 707 through C.A. 81 : P 171261c
4. Binder, J. and Holdel, E. "Protection of Textiles Against Bacteria and Fungi." Swiss patent 429, 292 through C.A. 68 : P7958m
5. Schroeder D.C. "Thiourea." Chem. Rev. 55(1955): 187
6. Duerr, D.,et.al. "N-(2-ethylhexyl)-N-arylurea Antibacterials." African patent 6,707, 807 through C.A. 70 : P 106177y
7. Schoeder D.C. "Thiourea. " Chem. Rev. 55(1955) : 183
8. Dixon, A.E. and Hawthorne, J., J.Chem. Soc. 91(1907) : 122 through Schroeder, D.C. "Thiourea. " Chem. Rev. 55(1955): 198
9. Angla, E., Ann.Chim. 4(1949) : 639 - 98 ; C.A. 44 : 3442h through Schroeder, D.C. "Thiourea." Chem. Rev. 55(1955) : 1
10. Khuncher, N.R. and Truter, M.R. " Detail Refinement of Crystal and Molecular Structure of Thiourea." J. Chem. Soc. (1958) : 2511 - 7
11. JUPAC. Nomenclature of Organic Chemistry. 3d ed.pp. 297 - 303. London : The Chapel River Press., 1971

12. Goodyear Tire and Rubber Co., British patent 194, 326; C.A. 16
(1922) : 106 : through Schroeder, D.C. "Thiourea." Chem. Rev.
55(1955) : 191
13. Braun, J.V., Chem.Ber. 33(1900) : 2726 through Schroeder, D.C.
"Thiourea." Chem. Rev. 55(1955) : 191
14. Lange, N.A. and Reed, W.R., J.Am. Chem. Soc. 48(1926) : 1069 through
Schroeder, D.C. "Thiourea." Chem. Rev. 55(1955) : 191
15. Fry, H.S., J.Am. Chem.Soc. 35(1913) : 1539 through Schroeder, D.C.
"Thiourea." Chem. Rev. 55(1955) : 192
16. Gugliamelli, L. and Novelli, A., Anales asoc. argentina 23(1925) :
255 - 65 ; C.A. 20(1926) : 2325 through Schroeder D.C.
"Thiourea" Chem.Rev. 55(1955) : 192
17. Wragg, R.T., Tet. let. ((1970) : 1931 through Theiheimer, W.,
Syn.Meth. 27(1973) : 592
18. Neville, R.G. and J.J. Mc., Org. Synth. 45 (1965) : 69 through
Theiheimer, W., Syn. Meth. 21(1968) : 395
19. Nair, G.V., J. Indian Chem. Soc. 42(1965) : 359 through Theiheimer,
W., Syn. Meth. 12(1958) : 504
20. Beals, R.E. and Brown, W.H., Can. J. Chem. 34 (1956) : 1408 through
Theiheimer, W., Syn.Meth. 13(1959) : 594
21. Schroeder, D.C. "Thiourea." Chem. Rev. 55(1955) : 193
22. Schroeder D.C. "Thiourea." Chem.Rev. 55(1955) : 194
23. Hoffmann La Roche and Co.A.G., British patent 678, 125 ; C.A. 47 :
6441 through Schroeder, D.C. "Thiourea." Chem. Rev. 55
(1955) : 196
24. Schroeder, D.C. "Thiourea." Chem. Rev. 55(1955) : 196

25. Ibid., p. 197
26. Knott, E.B., J. Chem. Soc. (1956) : 1644 through Theiheimer, W., Syn. Meth. 12(1958) : 569
27. Sayigh, A.A.R., et.al., J.Org. Chem. 30(1965) : 2465 through Theiheimer, W., Syn.Meth. 21(1967) : 485
28. Kricheldorf, H.R., Synthesis (1970) : 539 through Theiheimer, W., Syn.Meth. 27(1973) : 486
29. Ottmann, G. and Kober, E.H., Ang. Chem. 81(1969) : 782 through Theiheimer, W., Syn. Meth. 25(1971) : 266
30. Markovskii, L.N., et.al., Zh.Org.Khim. 8(1972) : 1822 ; C.A. 78 : 15710a through Theiheimer, W., Syn.Meth. 28(1974) : 557
31. Boyer, J.H. and Ramakrishnan, V.I., J.Org. Chem. 37(1972) : 1360 through Theiheimer, W., Syn. Meth. 28(1974) : 530
32. Battglia, A. and Dondoni, A., Synthesis (1971) : 378 through Theiheimer, W., Syn. Meth. 28(1974) : 527
33. Sakai, S., et.al., Bull. Chem. Soc. Japan 48(1975) : 2981 through Theiheimer, W., Syn.Meth. 31(1977) : 336
34. Meijer, O.J.'S Dextrine - Fabrieken, N.V., British patent 653, 775 " Nitrogen Containing Derivatives of Hexose " through C.A. 46 (1941) : 1587a
35. Liptak, A. and Bognar, R. " N - Glycosyl Derivatives XVI. Anomeric Relation in N - Glycosyl Methyl Esters." Acta. Chim. (Budapest) 73(1972) : 335 - 41 (Eng) through C.A. 77 : 114749m
36. Geigy, J.R. " 2 - Amino - 2 - deoxy - D - glucose Derivatives." French patent 1, 470, 309 through C.A. 68 (1968) : 7855k

37. Haftex, C.G. and Wieniawshi, W. "Synthesis of N-(D-glucosyl) thiourea." Acta Pol. Pharm. 24(1967) : 253 - 9(Pol) through C.A. 68 : 69232Y
38. Jassen, M.J. "Physical Properties of Organic Thiones IV. The Basicity of the Thiocarbonyl Group in Thiones. " Rev. Tran. Chim. 81 (1962) : 650 - 60 through C.A. 55 : 5112g
39. Trabanelli, G. "Spectrophotometric Researches on some Derivatives of Thiourea." Atti accad. Sci. Ferrara 35(1957 - 58) : 11 - 18 through C.A. 55 : 13047d
40. Foye, W.O. and Tovivich, P. "N-Glucopyranosyl-5-aralkylidenerhodanines : Synthesis and Antibacterial and Antiviral Activity." J. Pharm. Science 66(1977) : 1607 - 11
41. Schroeder, D.C. "Thiourea." Chem. Rev. 55(1955) : 198
42. Bohme, H., et.al., Arch. Pharm. 287(1954) : 198 through Theiheimer, W., Syn. Meth. 14(1960) : 653
43. Reev, W. and Nus, M., J. Am. Chem. Soc. 89(1967) : 647 through Syn. Meth. 22(1968), 629
44. Frontana, A. And Schoftone, E., Gazzet. Chim. Ita. 98(1968) : 1261 through Theiheimer, W., Syn. Meth. 24(1970) : 34
45. Kishide, Y. and Tarada, A., Chem. Pharm. Bull. 16(1968) : 1351 through Theiheimer, W., Syn. Meth. 23(1969) : 592
46. Ulbricht, T.L.V. and Prive, G.C., J. Org. Chem. 21(1956) : 967 through Theiheimer, W., Syn. Meth. 12(1958) : 443
47. Singh, S. and C., J. Indian Chem. 48(1971) : 925 through Theiheimer, W., Syn. Meth. 28(1974) : 560

48. Pene, C. et. al., Chem. Ther. 5(1970) : 111 through Theiheimer, W., Syn. Meth. 26(1972) : 355
49. Podesva, C. et. al., Can. J. Chem. 40(1962) : 1403 through Theiheimer, W., Syn. Meth. 18(1964) : 843
50. Kurzer, F. and sanderson, P.M., J. Chem. Soc. (1959) : 1058 through Theiheimer, W., Syn. Meth. 15(1961) : 304
51. Ibne - Rasu, K.M., et. al., Chem. & Ind. (1966) : 1418 through Theiheimer, W., Syn. Meth. 22(1958) : 321
52. Bell, S.C. and Caldwell, W.T., J.Am. Chem. Soc. 82(1960) : 1469 through Theiheimer, W., Syn. Meth. 16(1962) : 673
53. ibid, p: 1470
54. Nokagawa, W. and Minami, K., Tet. let. (1972) : 343 through Theiheimer, W., Syn. Meth. 27(1973) : 39
55. Bruyn, P., Chimia 14(1960) : 361 through Theiheimer, W., Syn. Meth. 17(1962) : 931
56. Black, D. St. C and Watson, K.G., Australian, J. Chem. Soc. 26 (1973) : 2159 through Theiheimer, W., Syn. Meth. 30(1976) : 328
57. Schulte - Elte, K.K., et. al., Helv. 56(1973) : 2028 through Theiheimer, W., Syn. Meth. 30(1976) : 1
58. Ikehara, M., et. al., Chem. Pharm. Bull. 12(1964) : 267 through Syn. Meth. 19(1965) : 624
59. Keley, D. and Freiser, H., Talanta 13(1966) : 1381 through Theiheimer, W., Syn. Meth. 22(1968) : 277
60. Kiffer, D. and Levy, R., Compts. rendus (Paris) Theiheimer, W., Syn. Meth. 25(1971) : 363

61. Iwakura, Y., et. al., Bull. Chem. Soc. Japan 43 (1970) : 2531
through Theiheimer, W., Syn. Meth. 27(1973) : 406
62. Simov, D. and Davidkov, K., Khim. Getevotsikl Soedin 2(1976) :
173 - 4 (Russ) through C.A. 85 : 32904
63. Walfer, W. and Randoan, G., Liebig's Annale. der Chem. 722(1969) :
52 through Theiheimer, W., Syn. Meth. 25(1971) : 81
64. Appel, R., et. al., Chem. Ber. 104(1971) : 1335 through Theiheimer,
W., Syn. Meth. 27(1973): 978
65. Walter, W. and Ruess, K.P., Chem. Ber. 102(1969) : 2640 through
Theiheimer, W., Syn. Meth. 25(1971) : 73
66. Diveley, D.R., et. al., J. Org. Chem. 34(1969) : 618 through
Theiheimer, W., Syn. Meth. 24(1970) : 231
67. Vasilev, G., Famatsiya (Sofia) 16(1966) : 20
68. Suami, T., et. al. "Nitrosourea Derivatives." German patent
2, 535, 048 through C.A. 84 : P165152
69. Messmer, A., et. al. " Sugar Phosphinimine and Sugar Phosphine
Carbodiimide. Stereochemistry of Carbodiimides." Tud.
Akad. Kem. Tud. Oszt. Kozle meny 25(1966) : 1 - 7 (Hung)
through C.A. 64 : 19733C
70. Beuffanais, A., et. al. "The Effect in Vivo on Influenza Virus of
Derivatives of Thioureas. Experientia 12(1956) : 73 - 5
71. Weinstein, L. et. al. "The Antiviral Activity of Urea Derivatives "
Antibiotics & Chemotherpy 7(1957) : 443 - 8 (Fr) through
C.A. 63 : 18879d
72. Young, R., et. al. " In Vivo Activity of Certain Thiocarbanilide
Compounds on Vaccinia and Experimental Poliomyelitis
Viruses." Ann. Inst. Pasteur. 109(1965) : 600 - 4 (Fr.)

73. Liebig, H. " Experimental Results with Purposely Synthesized Substances for Antiviral Chemotherapy. " Azneium - Forsch 24 (1974) : 887 - 92(Ger) through C.A. 82 : 38452e
74. Shindarov, L. "Antiviral Activity of N - (2 - hydroxyphenyl) thiourea Derivatives Against Some Picornaviruses;" Advan. Antimicrob. Antineoplastic Chemother., Proc. Int. Congr. Chemother. 1(1971) : 333-6 (Eng) through C.A. 79 : 74125x
75. Galabov, A.S. "Antiviral Phenylthiourea." Fr. Demande 2, 150, 834 Bulgaria Appl. 1, 792, 423 through C.A. 80 : P62220 m.
76. Vasilev, G. "Chemical Structure and Antiviral Activity of Some Derivatives of N - methyl - N - arylthiourea" Nauk. 29 (1976) : 685 - 8 (Eng)
77. Tarnowshi, G.S., et. al., "Effect of 1, 3 - Diallylarea and Related Compounds on Growth of Transplanted Animal Tumors." Cancer Res. 27(1976) : 1092 - 5 (Eng) through C.A. 67 : 42206k
78. Bernstein, J. and Steams, B. "Hydroxyurea Compositions for Treating Malignant Neoplastic Disease. " U.S. patent 3, 968, 249 through C.A. 85 : P 68311n
79. Emanuel, et. al. " Antitumor Activity of N - nitrosoalkylurea Compounds Experimental and Clinical Study. " Akual. Vop. Sorrem. Onkol. 3(1973) : 239 - 48 (Russ.) through C.A. 79 : 87607s
80. Mayo, J.G. "Biological Characterization of the Subcutaneously Implanted Lewis Lung Tumor." Cancer Chemother. Rep. 3(1973): 325 - 30. (Eng) through C.A. 79 : 13472m

81. Montgomery, J.A. "Chemistry and Structure Activity Studies of the Nitrosoureas." Cancer Treat Rep. 60(1976) : 651 - 64.
(Eng) through C.A. 85 : 72047y
82. Erhardt, W.,et.al. "Tuberculostatic 1,3-Diarylthioureas" Arzneim. Forsch. 9(1969) : 543 - 58(Ger) through C.A. 72 : 41258v
83. Fujikawa, F. "Chemotherapeutic Agents against Mycobacterium Tuberculosis XXVI. Synthesis and Antituberculous Activity of Phenylthiourea, p-Ethoxyphenylthiourea and 3-Bromo-4-ethoxyphenylthiourea Derivatives" Yakugaku Zasshi 91(1979) : 159 - 65 (Japan) through C.A. 74 : 141216g
84. Schellenbaum, M. and Duennenberger, M. "N-(hydroxyphenyl)-N-phenylureas for Antimicrobial Finishing or Protection of Textile Materials " Swiss patent 569, 754 through C.A. 76 : P35218 y
85. Nikawitz, E.J. and Walter, G.R. "Detergents." Swiss patent 577, 553 through C.A. 85 : P126269t
86. Martin, H.et.al., "Biocidal Washing and Cleaning Agents for Fibers." African patent 6,900,025 through C.A. 72 : P 133093u
87. Thiele, F.A.J. "Disinfectant and Deodorant Soap." U.S. patent 2,948,684 through C.A. 54 : P25909d
88. Georgier, V. "The Anticonvulsive Activity of Certain Phenylcarbamide Derivatives. "Izv. Inst. Fiziol., Bulg. Akad. Nauk. 10(1966) : 121 - 30
89. Pechenkin, A.G.,et.al." Relation Between the Chemical Structure of Urea Derivatives and Antipasmotic Activity Alkyl, Aralkyl and Diaralkyl Urea Derivatives. "Khim - Farm Zh. 6(1972) : 29 - 31 (Russ) through C.A. 77 : 135029b

90. Gandhi, T.P. and Jindal, M.N. "Antidiabetic Activity and Pharmacological Actions of a New Series of Sulfonylurea Derivatives." Arzneim Forsch 21(1971) : 961 - 7 through C.A. 75 : 128276k
91. Bernard, L., et.al. "Amidines III, Thiourea Possessing Antihypertensive Activity." J.Med. Chem. 15(1972) : 1024 - 7 through C.A. 78 : 11432e
92. Graham, B.E. and Skaletzky, L.L. "Treating Hypertension." U.S. patent 3,856,965 through C.A. 82 : 160233m
93. Madan, A.G. "Thiocarbanilides with Antiinflammatory and Antifungal Properties." Belgium patent 613,154 through C.A. 62 : 473f
94. Foye, W.O and Feldmann E.G., J.Am.Pharm. Assoc., Sc. Ed. 45(1956) : 30 ; Foye, W.O., et.al. J.Am. Pharm Assoc., Sc. Ed. 47(1958): 831
95. Campaigne, F. and Cline, R.E. "Preparation and Absorbtion Spectra of Some β -Aryl- α -mercaptoacrylic Acids and Related Disulfides" J. Org. Chem. 21(1956) : 32 - 8
96. Tovivich, P., M.S. Thesis, Massachusetts College of Pharmacy, 1972
97. Behringer, H., et.al. "Synthesis with Vinylogous Acid Halides III Substituted 5-Methylenerhodanine from 5-Chloromethylene-rhodanine" Chem.Ber. 91(1958): 2773 through C.A. 53 : 8120i
98. Andreasch, R., Monatsh. Chem. 27(1906) : 1211 through In Chemistry of Carbon Compounds, p1053 edited by E.H. Rodd, IV. Amsterdam : Elsevier Publishing Company, 1959
99. Brown, F.C., et.al. "Mildew-Preventing Activity of Rhodanine Derivatives, Some 5 - Arylidene Derivatives." Industrial

and Engineering Chemistry 45(1953) : 1030

100. Lemieux, R.U. Method in Carbohydrate Chemistry., Vol II. 2d.ed p.221
by Whistler, R.L. and Wolform, M.L. New York : Academic
Press, 1963
101. Vogel, A.I. A Textbook of Practical Organic Chemistry Including
Qualitative Organic Analysis. 3d ed.p.184. by Longman,Green
and Co. Great Britain : Spottiswoode, Ballantyne and Co.,
1956
102. Kirkhgof, G.A. and Akoniantz, E.A. "Thiourea." Khim. Farm. Prom.
3(1934) : 17 - 18. through C.A. 29 : 1781
103. Gmernicka - Haftex, C. and Wieniawski, W." Synthesis of N-(D-
glucosyl)thiourea." Acta Pol. Pharm. 24(1967) : 253 - 9
through C.A. 68 : 69232y
104. Nair, V.G. "Tert. butyl and Tert. amyl Isothiocyanates as Novel
Reagents for the Preparation of 1 - Substituted
Thiocarbamide Derivatives." Indian J. Chem. 4(1966) :
516 - 20
105. Schmidh, E.,et.al. "Aliphatic Carbodiimides I." Ber. 71(1968) :
1933 - 8 through C.A. 32(1938) : 9057³
106. Nuanton, W.I.S " The Connection Between the Chemical Constitution
and the Accelerator Action of the Diarylthioureas and
Diarylguanidines." Trans. Inst. Rubber Ind. 2(1926) :
147 - 66 through C.A. 21(1927) : 671
107. Pouchert, J.C. The Aldrich Library of Infrared Spectra. 2d ed.
p.435 B. Wisconsin : Aldrich Chemical Company, 1975

108. Ibid. 436D
109. Ibid. 965E
110. House., O.H. Modern Synthetic Reaction. 2d ed. pp. 660 - 661.
Carifornia : W.A. Benjamin, Inc., 1972
111. Girard, M. "Semicarbazones and Thiosemicarbazones of α - Ketoacid ,
Oxatriazolines and Tautomeric Hydroxytriazones. "Annale de
chimie 16(1932) : 326 - 394 through C.A. 37(1934) : 3091
112. Brown, F.C., et.al. "Rhodanine Derivatives" J. Am. Chem. Soc. 73
(1951) : 2357
113. Kucer, F. " Isothiohydantion and Related Compounds." Monatshefte
fur Chem. 35(1914) : 137 - 157 through C.A. 8(1914) : 1573
114. Ponomarev, A.A. and Dichkov, P.S. "Some New Derivatives of Rhodanine."
Uchenye. Zapiski Saratov Univ. 42(1955) : 45 through C.A.
51(1957) : 376
115. Wheeler, H.L. and Jamieson, G.S. "On Some Aldehyde Condensation
Products of Arylpseudothiohydantoin." J. Am. Chem. Soc.
25(1903) : 366
116. Julian, P.L. and Sturgis, B.M. " Homoamines and Homoacids. " J. Am.
Chem. Soc. 57(1935) : 1126 - 7
117. Isbell; H.S. and Frush, H.L. " The Stabilization of Acetylglucosyl
Halides and Sugar Acetates." J. Res. Nat. Bur. Std.
44(1950) : 173 - 4 through C.A. 44 : 5818a
118. Fischer, E., Ber. 47(1914) : 1377 - 1393 through C.A. 55 : 395f
Granacher, C. " Zur Kenntris des Rhodanines." Helv. Chim.
Acta. 3(1920) : 152

119. Mustafa, A., et.al. "On the Reactivity of the Exocyclic Double Bond in 5 - Arylidene - 3 - aryl - 2,4 - thiazolidinones; Their Reaction with Diazoalkane, p - Thiocresol and Piperidine." J. Am. Chem. Soc. 82(1966) : 2597
120. Arnett E.M., et.al. "Effect of Structure on Reactivity III, Aminolysis of Esters with Primary Amine." J. Am. Chem. Soc. 72(1950) : 5635
121. Belts, R. L. and Hammett L.P." A Kinetic Study of the Ammonolysis of Phenylacetic Esters in Methanol Solution." J. Am. Chem. Soc. 59(1937) : 1568
122. Gordon, M., et. al. " Effect of Structure on Reactivity II : Influence of Solvent on Ammonolysis of Esters." J. Am. Chem. Soc. 71(1944) : 1245
123. Van de Kamp, F. P. and Michael, F., Chem. Ber. 90(1957) : 1590 through Theiheimer, W. Syn. Meth. 13(1959) : 247
124. Haskell, T. H., et.al. "Neuraminidase Inhibition and Viral Chemotherapy. "J. Med. Chem. 13(1970) : 697
125. Foye, W.O. and Seung Ho. An. "Antimicrobial Activity of N-Glucosylrhodanines and N-glucosylthioureas. " J. Soc. Cosmet. Chem. 31(1980) : 287 - 297



ประวัติผู้เขียน

น.ส.วรรณิรณา ภาคักดี เกิดวันที่ 5 ตุลาคม 2499 ที่อำเภอเมือง จังหวัดพระนครศรีอยุธยา ได้รับปริญญาวิทยาศาสตรบัณฑิตสาขาวิชาเคมีจากมหาวิทยาลัยรามคำแหง เมื่อปีพ.ศ. 2521 ได้รับทุนช่วยการศึกษาของศาสตราจารย์ดร.แถบ ฝละณิธเมื่อปี 2522 บัคลุปนเป็นผู้ช่วยงานวิจัยของ อาจารย์ลู่ชาติตา ชินะฉัตร ภาควิชาเคมี จุฬาลงกรณ์มหาวิทยาลัย



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย