Asian Journal of Chemistry Vol. 14, No. 2 (2002), 1065–1066

NOTE

Thin Layer Chromatography of Aryl Hydroxy Compounds and Their Metal Complexes

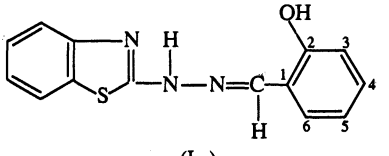
G.B. KULKARNI*, SHAIKH KABEER A. and N.T. PATEL
Department of Chemistry, The Madhu Malancha Degree College, Belal-Shakarnagar District: Nizamabad-503 180 (A.P.), India.

Thin layer chromatographic study of L_2 = 2′-(2-hydroxy phenyl)-benzothiazolyl hydrazone, L_2 = 2′-(2-hydroxy-5-chloroacetophenyl)-benzothiazolyl hydrazone, L_3 = 2′-(2,5-dihydroxyacetophenyl-benzothiazolyl hydrazone and their complexes have been made using silica gel as adsorbent, benzene and benzene: acetone as developing media.

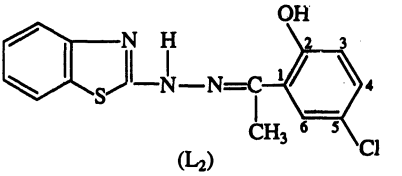
Key Words: TLC, Aryl, Hydroxy compounds, Metal, Complexes.

There are number of reports on the thin layer chromatographic studies. Some workers reported the thin layer chromotographic study of hydroxy compounds.[1-3] There is some error for the TLC of L_1 = 2′-(2-hydroxy phenyl)-benzothiazolyl hydrazone; L_2 = 2′(2-hydroxy-5-chloroacetophenyl)-benzothiazolyl hydrazone, L_3 = 2′-(2,5-dihydroxyacetophenyl)-benzothiazolyl hydrazone, and their complexes[4]. Thus in the present paper we describe thin layer chromatography of these aryl hydroxy compounds and their metal complexes.

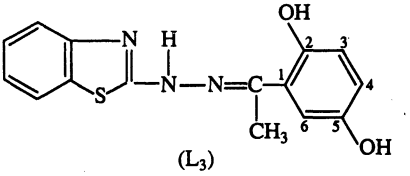
The hydroxy compounds and their complexes taken for study were prepared and purified by crystallisation using known method[4]. The TLC was carried out using Thoshniwal kit, silica gel (S.D.) was used as adsorbent. The plates were prepared using spreader adjusted the thin layer of 0.25 mm. The plates were dried in an oven at 110°C then cooled to attain the room temperature. L_1, L_2, L_3 and their complexes dissolved in ethanol and spotted on TLC plates. The plates were kept for developing a spot in a developing jar, saturated with the vapours of the solvent system at 30°C. The yellow colored spot located on TLC plates when exposed in iodine vapours.



(L_1)



(L_2)



(L_3)

Various solvent system studies benzene, benzene: acetone systems found most

suitable though the R_f values are found to be less. The R_f values are given in Table-1. Tabulated R_f values are less, which tells us hydroxy group present which is not involved in intramolecular hydrogen-bonding.

On increasing the polarity of solvent system there is no remarkable increase in R_f values of L_1, L_2, and their complexes, but L_3 and its complexes give remarkable increased R_f values, which are again less. Hence, L_1, L_2, L_3 and their metal complexes may be acidic in nature and their physico-chemical study under investigation.

TABLE-1
THE R_f VALUES OF SOME HYDROXY COMPOUND AND THEIR METAL COMPLEXES

S.No.	Compounds and their metal complexes	Solvent systems*		
		1	2	3
1.	L_1	0.45	0.46	0.50
2.	L_1-Ce (IV)	0.14	0.16	0.21
3.	L_1-Th (IV)	0.12	0.15	0.19
4.	L_1-UO_2 (VI)	0.31	0.32	0.33
5.	L_2	0.46	0.48	0.49
6.	L_2-La (III)	0.43	0.45	0.47
7.	L2-Ce (IV)	0.35	0.40	0.44
8.	L_2-Nd (III)	0.40	0.41	0.43
9.	L_2-Sm (III)	0.41	0.38	0.46
10.	L_2-Dy (III)	0.37	0.42	0.45
11.	L_2-Th (IV)	0.38	0.42	0.47
12.	L_3	0.40	0.51	0.52
13.	L_3 La (III)	0.22	0.48	0.41
14.	L_3 Ce (IV)	0.31	0.41	0.47
15.	L_3 Pr (III)	0.24	0.43	0.45
16.	L_3 Sm (III)	0.29	0.43	0.44
17.	L_3 Dy (III)	0.28	0.39	0.43
18.	L_3 Th (IV)	0.19	0.21	0.31
19.	L_3UO_2(VI)	0.33	0.41	0.42

*Solvent System: (1) benzene-100%; (2) benzene : acetone-90 : 10; (3) benzene : acetone 10 : 90.

ACKNOWLEDGEMENT

We thank Dr. M. Vani Manohar, Principal, M.M. Degree College, Belal for Providing research facilities.

REFERENCES

1. D.N. Dhar, *J. Chromatogr.*, **67**, 187 (1972).
2. D.N. Dhar and S.S. Mishra, *J. Chromatogr.*, **69**, 416 (1972).
3. D. Dasharath and Y.B. Vibhute, *Asian J. Chem.*, **2**, 107 (1972).
4. A. Shaik Kabeer, M.A. Basheer and N.A. Mote, *Asian J. Chem.*, **13**, 496 (2001).

(Received: 1 October 2001; *Accepted*: 15 February 2002) AJC-2637