

## NOTES

## Thin Layer Chromatography of Some Chalcones

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Thin layer chromatographic studies of 5 : 6-benzochalcones have been made using silica gel as adsorbent and solvent ethyl acetate: benzene mixture as developing media.

Thin layer chromatographic studies of chalcones have been reported by some workers<sup>1,2</sup>, but no one has studied the TLC of 5 : 6-benzochalcones. It was therefore thought of interest to study TLC of some 5 : 6-benzochalcones. The compounds taken for study were prepared<sup>3,4</sup> and purified by recrystallisation. The TLC was carried using Toshniwal kit. Silica gel (S. merck) was used as an adsorbent. The plates were prepared with help of spreader adjusting the thin layer to 0.25 mm. The plates were dried in an oven at 110° and cooled to room temperature. Chalcones dissolved in ethyl alcohol were spotted on the TLC plates and then plates were kept in a developing jar, saturated with the vapours of the solvent systems at 30°. The plates were run upto approximately 10 cms

TABLE 1  
R<sub>f</sub> VALUES OF SOME CHALCONES

5 : 6 benzochalcones	Solvent systems	
	Benzene : Ethyl acetate	
	(95 : 5)	(90 : 10)
2',4'-dihydroxy	0.31	0.43
2',4'-diacetoxy	0.36	0.56
2',4'-dimethoxy	0.47	0.62
2',4'-dibenzoloxo	0.73	0.84
3',5'-diiodo-2',4'-dihydroxy	0.11	0.21
3',5'-diiodo-2',4'-dimethoxy	0.81	0.88
2'-hydroxy	0.56	0.60
5'-chloro-2'-hydroxy	0.86	0.87
3'-chloro-2'-hydroxy	0.85	0.86
5'-bromo-2'-hydroxy	0.90	0.91
5'-methyl-2'-hydroxy	0.78	0.91
3',5'-dichloro-2'-hydroxy	0.87	0.89
3',5'-diiodo-2'-hydroxy	0.88	0.92
3',5'-diiodo-4'-hydroxy	0.20	0.26

and then removed from jar and dried. The spots on TLC plates were located by yellow colour of chalcones or by exposing the TLC plates to iodine vapours.

Out of the various solvent systems studied, benzene : ethyl acetate (95 : 5 v/v) and benzene : ethyl acetate (90 : 10 v/v) were found to be most suitable. It was observed that the  $R_f$  values increased as the dielectric constant of solvent increases, i.e. in the following order. Benzene < benzene:ethyl acetate (95 : 5) < benzene : ethyl acetate (90 : 10). There is an increase in  $R_f$  value as the 2' : 4'-dihydroxychalcones are converted to diacetoxy, dimethoxy and dibenzoloxo chalcones.  $R_f$  value increases when substitution is made in 2'-hydroxy 5 : 6-benzochalcones by 3'-chloro, 5'-chloro, 5'-bromo, 5'-methyl, 3',5'-dichloro or 3',5'-diiodo.  $R_f$  value decreases if the 2'-hydroxy group is changed to 4'-position in 3' : 5'-diiodo 5 : 6-benzochalcones.  $R_f$  values are given in Table 1. This clearly shows that the less  $R_f$  values are found in chalcones in which one of the hydroxy group is not involved in intramolecular hydrogen bonding.

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