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# REACTION MECHANISM OF SOLVOLYSES INVOLVED TRIFLUOROACETATE LEAVING GROUPS USING SOLVATOCHROMIC PARAMETERS

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Solvolyses of *p*-substituted phenylethyltrifluoroacetate have been investigated in various binary solvent mixtures. All cases applying to Grunwald-Winstein's and its various extended Grunwald-Winstein equations are dispersed from linearity. To find correlation of *m*Y, *tert*-butyl acetate solvolyses have been done in various aqueous solvent mixture.

The leaving group effects between the original standard substrate, tert-butyl chloride and *tert*-butyl acetates are similar to each other in aqueous protic binary solvent mixtures. However *p*-substituted phenylethyltrifluoroacetate, even expecting of intervention of aromatic ring, the correlation analysis shows very poor to Liu's Y*bnX* and Kevill's ring parameter equation.

Application of kinetic results to solvatochromic equation is rather better than any other *m*Y correlation. According to the analysis results of solvatochromic correlation, it reaches a conclusion that *p*-substituted phenylethyltrifluoroacetate solvolyses are more affected by the solvent hydrogen bond donor acidity than the solvent cohesive energy density.

(1) Liu,K.-T.;Lin,Y.-S.;Tsao,M.-L. *J.Phys.Org.Chem.* 1998, 11, 22
(2) Kyong,J.B.;Park,B.-C.;Kim.C-.B.;Kevill,D.N. *J.Org.Chem.*2000, 65,805
(3) Zhu,J.;Bennet,A.J. *J.Org.Chem.* 2000, 65, 4423
(4) Sung,D.D.;Kang,D.D.;Chang,J.A.;Park,S.B.;Ryu,Z.H.*Bull.Korean.Chem.Soc.* 1998,19,561
(4) Sung,D.D.;Kang,D.D.;Chang,J.A.;Park,S.B.;Ryu,Z.H.*Bull.Korean.Chem.Soc.* 1998,19,561
(5) Sung,D.D.; Oh,H.K.; Lee,I. *J.Chem.Soc.Perkin Trans.*2,2000, 101