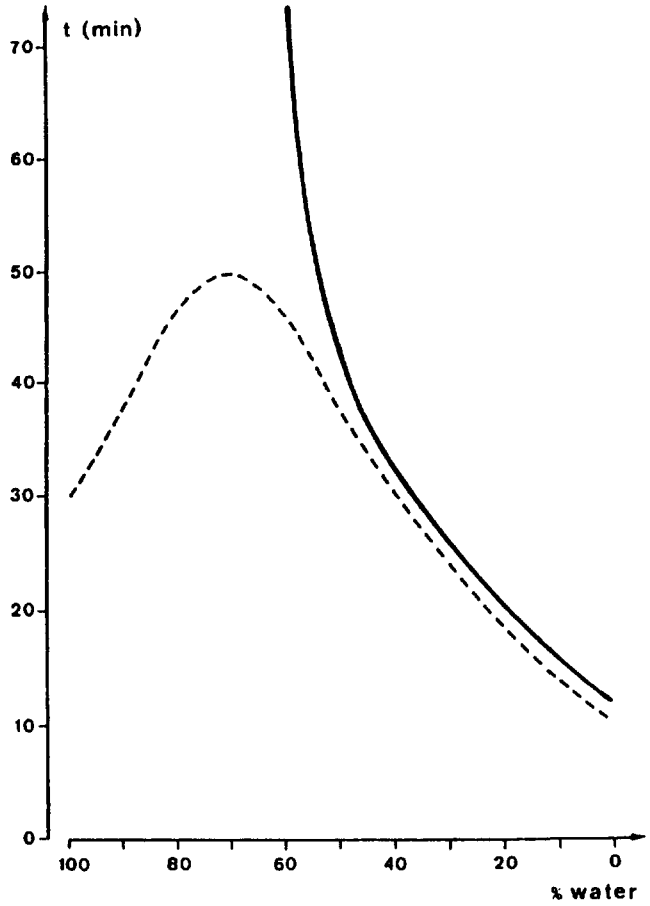

Figure 4 Dependence of the migration times of RP precoated plates on different degrees of modification. (——) HPTLC precoated plate RP-18 F254s; (- - -) HPTLC precoated plate RP-18W F254s. Eluent: Acetone–water (0:100) to (100:0). Migration distance 7 cm. Normal chamber without saturation.

name or description to describe their compatibility with high or pure water mobile phases (developing solvents).

An area into which many TLC users have wanted to go is the separation of ionic species in the reversed phase as is done often in HPLC. To accomplish this, because the bonded phases absorb un-ionized species best to give more perfectly shaped spots, ion formation must be suppressed. Thus, if the compounds are ionized carboxylic acids, then the developing solvent has to be acidified with acetic or phosphoric acid (only 1–2% by volume in the developing solvent is necessary). Conversely, if the compounds to be separated are amines, then the developing solvent has to be made basic with ammonium hydroxide. Everyone who performs TLC is familiar with adding a small amount of glacial acetic acid or ammonium hydroxide if tailing is seen. This tailing is the result of the ionization of the ionic groups as discussed above.

If the ionic groups on the compounds are strong, then simple ion suppression does not work. With the aid of so-called ion-pair chromatography, it is possible to selectively retain these more polar ionizing compounds. According to this mechanism, charged polar sample molecules form salts with oppositely charged reaction partners (ions) containing hydrophobic substituents. Because of their nonpolar character, the ion pair formed can interact in a selective way with reversed phases. Applications for ion-pair chromatography in reversed-phase thin-layer chromatography