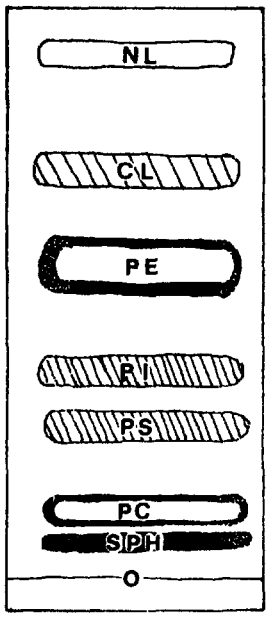

Figure 3 Separation of the major cellular and tissue phospholipids of animal tissues by one-dimensional TLC on a silica gel H plate. The mobile phase used was chloroform–methanol–acetic acid–water (50:37.5:3.5:2). See Ref. 54 for additional details. Abbreviations: O, origin; SPH, sphingomyelin; PC, phosphatidylcholine; PS, phosphatidylserine; Pl, phosphatidylinositol; PE, phosphatidylethanolamine; CL, cardiolipin; NL, neutral lipids. (Redrawn from Ref. 54 with permission of Elsevier Press, Inc.)

classes of glycolipids, i.e., cerebrosides, di- and triglycosylceramides, and ceramide trihexoside-*N*-acetylgalactosamine, can be separated on silica gel layers with the mobile phase chloroform–methanol–water (65:25:4) (24). Expected R_f values of these compounds would be, approximately, ceramide trihexoside-*N*-acetylgalactosamine, 0.16; ceramide trihexosides, 0.31 and 0.36; ceramide dihexosides, 0.55 and 0.62; ceramide monohexosides, 0.78 and 0.86.

4. Gangliosides

One-dimensional TLC can be used to separate gangliosides with various combinations of chloroform–methanol–water or *n*-propanol–water as solvent systems (63). The mobilities of acidic gangliosides as well as the compactness of bands are influenced by the presence of salts or ammonia, but this is not the case for neutral glycolipids (63). For examples of one-dimensional separation of gangliosides, see Ando and Saito (63) and Fig. 4. Ledeen (21) provided an example of a ganglioside separation on silica gel using the basic solvent system chloroform–methanol–2.5 M aqueous ammonia (60:40:9). The approximate R_f values were as follows: trisialogangliosides, 0.14 and 0.28; disialogangliosides, 0.41, 0.57, and 0.69; monosialogangliosides, 0.85 and 0.97. Rementzis et al. (21a) used one-dimensional silica gel TLC to identify gangliosides from the muscle of the common Atlantic mackerel, *Scomber scomborus*. They identified monosialogangliosides and disialogangliosides with the mobile phase propanol–water (7:3); the compounds were detected by spraying with resorcinol reagent.

E. Two-Dimensional Solvent Systems

1. Neutral Lipids

Two-dimensional solvent systems have been helpful in resolving some complex lipid mixtures. Although not used frequently for neutral lipid separations, they can be helpful in resolving non-