LIPID CHROMATOGRAPHY ON ANION EXCHANGE PAPER*

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Anion exchange paper has proved to be an effective medium for chromatographic separation of surfactant lipids. Reproducibility of R_f values, relative freedom from oxidative adsorption and commercial availability of the paper render this method superior in separation of phospholipids, glycolipids and sulfolipids of plants (Ferrari and Benson, 1961). The chromatograms produced good radioautographs and could be eluted for recovery and identification of the separated radioactive lipids. The anion exchange paper found most satisfactory was untreated aminoethyl cellulose (Whatman AE30). Best results were achieved by ascending development with the diisobutyl ketone-acetic acid-water (40:25:5 v/v) solvent of Marinetti et al. (1957).

The chromatographic technique was tested using labeled lipid extracts of wheat leaves and algae. Radioautography revealed the location of the separated lipids. Identification was made by chromatography of the deacylation products (Dawson, 1954). The separation order of the phospho- and glycolipids differed from that obtained on silicic acid-impregnated paper. Table I shows R_f values of the major plant lipids.

Table I

Lipid Separation on Aminoethyl Cellulose Paper

Lipid	R_f(4°)	R_f(25°)	Lipid	R_f(4°)	R_f(25°)
Phosphatidyl inositol	0.29	0.32	Phosphatidyl choline	0.61	0.73
Sulfoquinovosyl diglyceride	0.30	0.33	Galactosyl diglyceride	0.68	0.83
Phosphatidyl glycerol	0.42	0.44	Glycosyl diglyceride (unk.)	0.72	--
Digalactosyl diglyceride	0.49	0.56	Unknown	0.91	--
Phosphatidyl ethanolamine	0.58	0.68	Triglycerides	0.98	0.98

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Although chromatography at room temperature gave good separation, improved separation of the faster moving lipids was acheived at 4°C.

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