F_{254} aluminum-blacked plates with propan-1-ol–aqueous NH_3–methanol–H_2O (6:4:3:1) as mobile phase. The additional information obtained from TLC outweighed the disadvantage of destruction of the fibers.

D. Dyes from Alcoholic Products

Dyes can be isolated from alcoholic products by the wool yarn method (52). The dye is extracted from an acidified sample of lime or ethanol onto wool yarn, which is then extracted in 10% aqueous NH_3 (53,54). Alternatively, liquor samples (10 mL) can be evaporated and the residue dissolved in 40% ethanol (1 mL). This solution can be analyzed for dyes (55,56).

E. Cosmetic Dyes

Lipsticks are sometimes applied directly to TLC plates (57). Fat and fat-soluble colors are extracted from samples of cosmetics with hexane, after which the organic dyes are extracted with dimethylformamide in the presence of H_3PO_4 (58).

Cosmetics and food dyes are extracted from tablet coating formulations, releasing the dyes from their lakes by treatment with 85% H_3PO_4, then dissolving in methanol and making alkaline with concentrated aqueous NH_3 (59).

Dyes are extracted from soaps by dissolution in methanol or in CH_2Cl_2 and subsequent TLC (60). Alternatively, the soaps are fused with formic acid and the fatty acids are extracted into heptane. Oil-soluble dyes and some pigment dyes are separated from fatty acids by back-extraction into formic acid. After dilution of the filtrate, 30% NaOH solution is added, the mixture is extracted with $CHCl_3$, and the extract is washed with H_2O (61).

Dyes can be extracted from mouthwashes and toothpastes in either light petroleum or CH_2Cl_2 (62).

Nail lacquers are digested with ethyl acetate, and the digest is extracted with aqueous 50% dimethylformamide. The lower dimethylformamide phase is separated and, after extraction with high petroleum to remove fat, is mixed with polyamide powder, which adsorbs the dye. The powder is packed in a column and washed with methanol. The dye is then eluted with concentrated aqueous NH_3–methanol (1:19) (63).

F. Dyes from Miscellaneous Sources

The extraction of dyes from capsules and sugar-coated tablets can be carried out by dissolving a suitable number of empty capsules in 5 mL of 10% CH_3COOH and passing the mixture through a column (1 cm diameter) containing 1.5 g of alumina. The gelatin is removed by passing 10 mL of H_2O through the column with gentle suction. The coloring matter is then eluted with 1% aqueous NH_3. The eluate is carefully evaporated to dryness, and the residue is dissolved in a few drops of methanol and examined by TLC (64). Dyes from paints can be extracted with CH_2Cl_2 (65).

Dyes from powdered pencil lead or pencil writing on plain white paper can be extracted with acetone, and portions of extract can be separated on silica gel G plates using toluene–cyclohexane (1:1), butanol–ethanol–H_2O–anhydrous CH_3COOH (70:30:30:0.5), or butanol–ethanol-NH_3 (4:1:1) as mobile phase (65a). Reports on the extraction and separation of dyes from different types of inks and other marking materials are also available (65b–65e). Zlotnick and Smith (65f) reviewed the components of different types of inks and their identification by using a number of separation techniques including thin-layer chromatography.

Koprivanac et al. (65g) studied the production of monochlorotriazine reactive dyes using an anthraquinone reactive blue as a model. The stages of the process were monitored with TLC. Twelve chromatographic systems were investigated, and the most favorable mobile phase for TLC of the studied compounds was chloroform–isopropyl alcohol–ammonium hydroxide (2:4:1).

Separation of oil-soluble synthetic colors from annatto were studied by Biswas et al. (65h). Annatto extract was shaken with hexane and aqueous 70% acetonitrile, and the aqueous layer was diluted with water and reextracted hexane or $CHCl_3$. The combined extracts were concentrated