Table 8 Results from Determinations of Sulfonamides in Pharmaceutical Preparations

Preparation	Amount found (% of labeled amount)[a]	
	HPTLC	Spectrophotometry
Sulfameter (I), 100 mg/tablet	101.7 ± 2.62	102.2 ± 0.7
Sulfamethoxazole (II), 250 mg/tablet	98.6 ± 2.03	100.3 ± 1.1
Sulfameter (I), 100 mg/tablet	101.9 ± 2.07	
Sulfisoxazole (III), 400 mg/tablet	102.1 ± 2.58	

[a]Average of six determinations ± relative standard deviation.
Source: Ref. 99.

(30:70, 15:85, and 5:95), respectively, and successive distances of 15, 30, and 45 mm. The plates were scanned at 366 nm after being sprayed with fluorescamine solution.

Some sulfonamides were separated by TLC on silica impregnated with cobalt, copper, nickel, zinc, cadmium, and mercury salts (104). The separation of 10 sulfonamides on polyamide impregnated with metal salts as well as on bare polyamide was presented (105). The plates were developed with solvent mixtures containing various concentrations of ethanol in ethyl acetate or acetone. Scanning was performed by transmission densitometry at 254 nm.

The structures of polyamide layers impregnated with cobalt, copper, and zinc salts were investigated (106). The chromatographic properties of these sorbents were tested on selected sulfonamides.

I. Other Antibiotics

1. Polyethers

Polyether or ionophore antibiotics are chemically characterized by several cyclic ethers, a single terminal carboxylic acid group, and several hydroxyl groups. They are mainly produced by *Streptomyces* species. They are widely used anticoccidiosis agents for poultry. The main members of this class are salinomycin, monensin, lasalocid, and narasin. Lasalocid consists of two cyclic ethers, whereas the rest have six ether rings. Salinomycin and narasin have almost identical structures.

Asukabe et al. (107) established a method for the simultaneous determination of three polyether antibiotics, i.e., salinomycin, monensin, and lasalocid, and two derivatives using silica gel and RP-18 HPTLC. Fluorescent pyrenacyl esters of those antibiotics and of internal standards (18,19-dihydrosalinomycin and 18,19-dihydro-20-ketosalinomycin) were prepared. Silica gel plates were developed with carbon tetrachloride–ethyl acetate–acetonitrile (50:5:10), and RP-18 plates with dichloromethane–ethyl acetate–acetone–acetonitrile (15:2:1:55). The spots were detected fluorodensitometrically at 360 nm. The same three polyethers were isolated from poultry tissues and separated by VanderKop and MacNeil (108) by means of TLC bioautography with *Bacillus subtilis*. The tissue extract was spotted on a preheated TLC plate with a concentrating zone and allowed to dry for 0.5 h. The plate was developed with ethyl acetate–acetonitrile (1:1).

Thin-layer chromatography coupled with flame ionization detection was used to separate and determine simultaneously three polyether antibiotics (abierixin, nigericin, and grisorixin) produced by *Streptomyces hygroscopicus* (109). Development on silica gel chromarods with chloroform–methanol–formic acid (97:4:0.6) gave reliable separations of the three antibiotics. The internal standard methyl desoxycholate was suitable for their simultaneous determination.

2. Amphenicols

Chloramphenicol is a broad-spectrum antibiotic produced by *Streptomyces venezuelae*. It was first used in the late 1940s to treat an epidemic of typhus in Bolivia. Thiamphenicol was discovered