C. Applications

1. Separation Parameters for the Racemic Compounds Cited in Ref. 99

a. Chromatographic Conditions

Method: Ascending, one-dimensional development in a TLC chamber with chamber saturation.

Plates: Cellulose precoated HPTLC plates (Cat. No. 5786, Merck), 10 × 20 cm; layer thickness 0.1 mm, without fluorescent indicator.

Eluent: Methanol–water, 3:2.

Sample volume: 1 μL of a 0.05% methanolic solution (1:1) applied as a 10 mm streak.

Length of run: 17 cm.

Time of run: 2 h.

Detection: The dried plates were immersed for 3 s in a 0.3% ninhydrin solution in acetone (Tauchfix, Baron) and then dried in a cabinet for about 4 min at 105°C. Blue-violet derivatives formed on the white background.

b. Spectroscopy

Apparatus: Chromatogram spectrometer CD 60 (Desaga, Heidelberg, Germany).

Measuring principle: Monochromator-TLC plate (reflectance).

Light source: Tungsten lamp. Wavelength 565 nm. Slit: 6 × 0.2 mm.

Scanning: 0.05 mm. Results: See Figs. 1 and 2.

V. ENANTIOMERIC SEPARATIONS ON MICROCRYSTALLINE TRIACETYLCELLULOSE THIN-LAYER PLATES

A. Resolution Mechanism

The resolving capability of this polysaccharide derivative is based on its morphological structure. Peracetylation of the cellulose has to be performed such that the conformation and relative position of the carbohydrate bands in their crystalline domains remain intact. In this state cellulose triacetate includes enantioselectivity; i.e., antipode separations are possible (59).

B. Survey of Applications of Racemic Separations

In 1973 Hesse and Hagel (113) for the first time described the thin-layer chromatographic racemate separation of Troeger's base on cellulose triacetate. Systemic investigations of this chiral support by Faupel (114) resulted in commercialization of a microcrystalline triacetylcellulose plate by Antec, Bennwil. These plates are stable with aqueous eluent systems and resistant to dilute acids

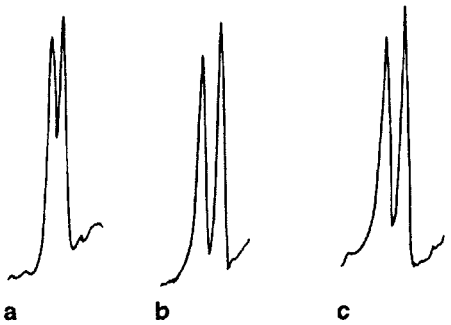

Figure 1 Remission-location curves: (a) D,L-Dopa; (b) D,L-tryptophan; (c) D,L-5-hydroxytryptophan.