CAPSULES
preliminary notes and applications from Bioanalytical Systems, Inc.

Determination Of Terbutaline (Bricanyl)

Purpose

Determination of terbutaline (Bricanyl) in human plasma. Terbutaline is a β_2-receptor agonist, used in the treatment of asthma. Effective doses are in the 10-30 pmole per mL range, so sensitive and selective detection methods are needed.

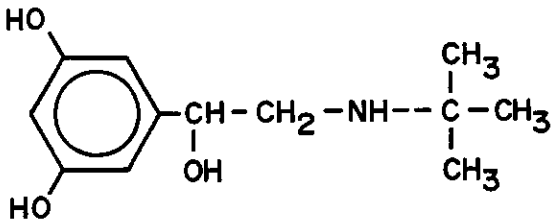

Figure 1. Structure of terbutaline

Existing Methods

Gas chromatography-mass spectrometry, but these are expensive and require sophisticated equipment.

Reference

Quantitative Analysis of Terbutaline (Bricanyl) in Human Plasma with Liquid Chromatgraphy and Electrochemical Detection Using On-Line Enrichment, S. Bergquist and L.E. Edholm, J. Liq. Chromatogr., 6(1983) 559-574.

Conditions

Detector: BAS LC-4
Electrode: Glassy Carbon
Potential: + 0.9 vs Ag/AgCl
Column: 10 µm C 18 reverse-phase Nucleosil (200 x 5 mm)
Guard Column: C 18 (23 x 3.9 mm)
Mobile Phase: methanol: citric/orthophosphoric acid buffer, pH 6.0 (12:88, V:V) plus anhydrous perchlorate (50 mM).
Linear Range: 5 - 50 pmoles per mL plasma

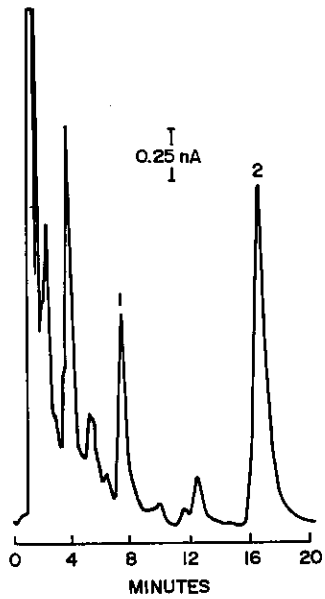

Figure 2. Chromatogram from plasma of volunteer administered terbutaline.

1 = terbutaline, 2 = internal standard.

Sample Preparation

Plasma samples were centrifuged to remove protein residues, then passed through a cation exchange column. Samples were eluted at pH 11, adjusted to pH 6.0, then injected.

Notes

Purification by cation exchange reduces the chance for unwanted side reactions and increases recovery.

Retention can be controlled by varying the methanol content of the mobile phase.

Accuracy compared favorably with GC-MS, except at 5 pmole per mL concentrations.

The determination above can be duplicated with the BAS 400 Liquid Chromatograph.

The information in this publication is supplied as a service to our customers. Performance of the methodology has not necessarily been verified by BAS technical staff.