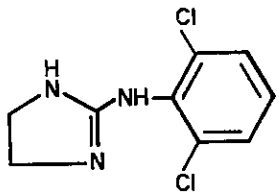
CAPSULES
preliminary notes and applications from Bioanalytical Systems, Inc.

Clonidine Formulations

Purpose
Determination of clonidine in drug formulations.



CLONIDINE

Figure 1. Structure of clonidine.

Clonidine (2-(2,6-dichloroanilino)-2-imidazoline, F1) is an antihypertensive agent used in the treatment of high blood pressure. The drug works by stimulating α-adrenergic receptors in the central nervous system. Side effects include analgesia, hypothermia, sedation, and a withdrawal syndrome which includes hypertension, tachycardia and anxiety. Effective therapeutic concentrations are low (0.2- 2.2 ng/mL plasma). At the time of this writing we were not aware of any published LC procedures for clonidine in body fluids.

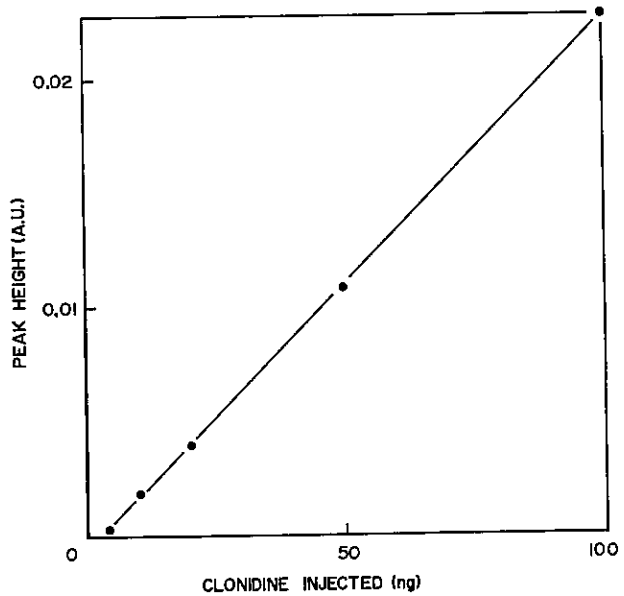


Figure 2. Calibration curve for clonidine standards. Each point represents the mean of 2 determinations.

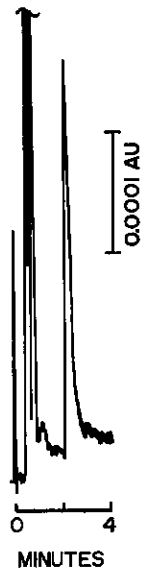


Figure 3. Sample chromatogram of 2 ng clonidine.

Existing Methods
GC, GC-MS, GC-ECD [1], radioimmunoassay and radiolabelling have been used for therapeutic monitoring or pharmacokinetic studies. The USP method for tablets requires UV spectrophotometric measurement, which is non-specific [2].

Conditions
System: BAS 400 Liquid Chromatograph
Detector: BAS UV-108 variable wavelength (220 nm)
Column: BAS 3 µm Phase II Octyl reverse-phase (100 x 3.2 mm) (PN MF-6214)
Mobile Phase: 82.7% (v:v) 0.02 M KH_2PO_4, pH 6.0; 17.5% acetonitrile. Flow rate was 0.9 mL/min.
Detection Limit: 200 pg injected standard (S/N = 3)
Linear Range: 0.5-100 ng injected standards

Sample Preparation

Appropriate amounts of clonidine hydrochloride (corrected for the amount of free base) were dissolved in mobile phase and injected in 20 µL aliquots.

Notes

The determination of clonidine also can be performed on the BAS 200 Problem Solver.

References

1. Nazarali, A.J., J. Chromatogr. 380 (1986): 393-400.

2. Walters, S.M. and D.B. Stonys, J. Chromatogr. Sci. 21 (1983): 43-45.