PICKERING LABORATORIES

Analysis of Alprostadil by HPLC with Post-Column Derivatization

Alprostadil (Prostaglandin E1) is a drug that has vasodilation properties and is used to treat erectile dysfunction (ED) and other medical conditions. This medication is available in injectable form and in suppository form.

Since Prostaglandin E1 has low UV absorbance, the analysis of the formulations could be difficult. The addition of post-column derivatization increases the sensitivity and specificity of the analysis.

Method

Analytical Conditions

Analytical Column: Reversed-phase C_{18} column (150 x 4.6 mm)

Temperature: 37 °C

Flow Rate: 1 mL/min

Mobile Phase: 30% Acetonitrile – 70% of 0.02 M Potassium Phosphate monobasic (adjusted to pH 3)

Or alternative conditions:

Mobile Phase: 25% Acetonitrile – 75% of 0.0067 M Potassium Phosphate buffer pH 6.3

Injection Volume: 20 uL

Post-Column Conditions

Post-Column System: Onyx PCX or Pinnacle PCX

Reactor Volume: 2 mL

Reactor Temperature: 60 °C

Reagent: 1 mol/L Potassium Hydroxide

Reagent Flow Rate: 1 mL/min

Detection: UV 278 nm

Calibration

Alprostadil: 0.1 ug/mL – 10 ug/mL

β-Naphthol (Internal Standard): 0.25 ug/mL – 10 ug/mL

Make stock solutions of Alprostadil and β-Naphthol in anhydrous Ethanol. Prepare working standards by appropriate dilution of stock solution with mobile phase.

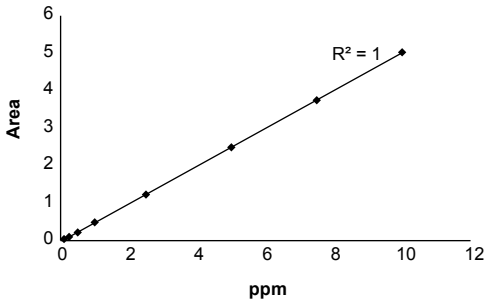

Fig 1. Calibration curve for Alprostadil

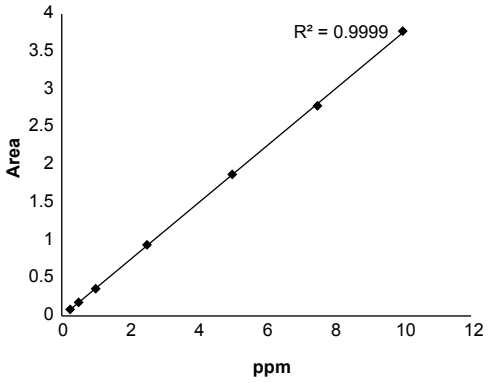

Fig 2. Calibration curve for β-Naphthol

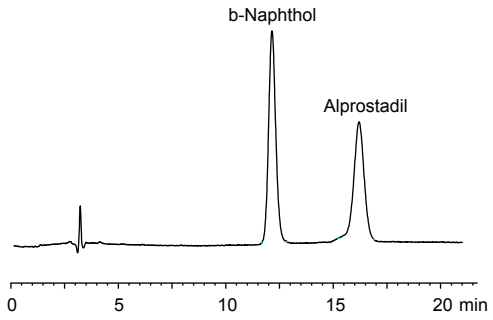

Fig 3. Chromatogram of Alprostadil and β-Naphthol (Internal Standard)