

## **DEVELOPMENT OF PROCEDURES FOR ASSAY OF DRUG FORMULATIONS AND RESOLUTION OF THEIR RACEMIC MIXTURES**

Penicillins and cephalosporins (subclasses of  $\beta$ -lactam antibiotics) are widely used against Gram-positive and Gram-negative bacteria. Use of HPLC, TLC-bioautography, and thin silica gel layers precoated with fluorescent material has been reported in literature for the analysis of these compounds. Under the project, straightforward and sensitive method for rapid separation and detection of selected  $\beta$ -lactams has been developed. Bulk impregnation of homemade silica gel G layers and impregnation of readymade silica gel 60 layers with 0.2% ammonium chloride was carried out and various mobile phases have been established for UV detection of the compounds. Separation of penicillins (benzylpenicillin, ampicillin, and amoxicillin) and cephalosporins (cephalexin, cefoperazone, ceftriaxone, cefixime, and cefadroxil) was achieved by use of propanol-acetic acid 4:1 (v/v) and butanol-acetic acid-water 4:1:2 (v/v) respectively, as mobile phases.

Rapid and simple reversed phase chromatographic conditions have been developed to separate pharmacologically active components of antihypertensive drug formulations (enalapril maleate + amlodipine besilate and ramipril + hydrochlorothiazide) on high-performance liquid chromatography (HPLC) and thin layer chromatography. The mobile phase consists of methanol-water (60:40 v/v) for reversed-phase thin layer chromatography (RPTLC). Detection was carried out by iodine vapors. The HPLC method was developed on a C-18 column with detection carried out by a UV detector at 215 and 220 nm for enalapril maleate + amlodipine besilate and ramipril+ hydrochlorothiazide, respectively. The HPLC method was validated using data elements specificity, linearity and range, and accuracy and precision.

विज्ञानम् लोकहिताय

UTTARAKHAND