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Determination of Lamivudine by Precolumn Derivatisation using GC-FID in Pure and Pharmaceutical Dosage Form

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Abstract: For the purpose of quantitative estimation of Lamivudine (LMV) in bulk and also pharmaceutical dosage forms a novel method was developed. Ethyl chloroformate (ECF) was used as a precolumn derivitizing reagent. Internal standard employed for this method is Phenylhydrazine (PHZ). GC separation was carried out on a 30 meter length Rtx-5 capillary column (cross bond 5% diphenyl/ 95% dimethyl polysiloxane) and an internal diameter of 0.25 mm aided with flame ionization detector. The elution was carried out at an initial temperature of 100˚ C for one minute at a heating rate of 10˚C/min up to 250˚ C and nitrogen flow rate of 2 mL/min and a split ratio of 4:1, v/v. The linear calibration ranges for LMV was observed between 10-50 ng/mL with corresponding to detection limits of 2 ng reaching the detector. The method developed is later used for the determination of LMV in pharmaceutical preparations. The relative standard deviation (RSD) was found to be 1.53%. The recovery studies were done and the percentage recovery of LMV was found to be 99.2%.

Key words: Gas chromatography, lamivudine (LMV), Phenyl hydrazine (PHZ), Internal standard, Ethyl chloroformate (ECF), Flame ionization detector (FID).

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