ABSTRACT

Validation of Thin Layer Chromatography Method for the Determination of Paracetamol and Ibuprofen in Pharmaceutical Formulation

Thin-layer chromatography (TLC) Densitometry method was developed for determination of paracetamol and ibuprofen tablets. The purpose of this study were obtaining an efficient solvent for extracting paracetamol and ibuprofen from sample and a good eluent for separating between paracetamol and ibuprofen on the TLC plate. Validation of the method that were determined i.e., selectivity, linearity, accuracy and precision. Paracetamol was separated from ibuprofen on silica gel 60 F 254 using ethyl acetate : n-hexane, (75 : 25 v/v), as mobile phase. Retardation factor (Rf) of paracetamol and ibuprofen was obtained 0.24 and 0.64, respectively. Resolution factor between paracetamol and ibuprofen was 6.4. The analyte spots were quantified using densitometry method at λ = 244 nm, for paracetamol, and 260 nm, for ibuprofen. Calibration curves were linear in range of 2036 - 10180 ppm (r = 0.9879, Vxo = 9.54 %) and 2012 – 10060 ppm (r = 0.9979, Vxo = 3.98 %) for paracetamol and ibuprofen, respectively. The average percentage recovery of paracetamol and ibuprofen was 103.04 $\pm$ 2.46 % and 101.81 $\pm$ 4.94 %, respectively. Precision of the method was 2.40 % and 4.85 % for paracetamol and ibuprofen, respectively. This method was used for determination of paracetamol and ibuprofen in pharmaceutical formulation (tablet). Therefore this method is suitable for routine analysis of this drug in raw materials and formulations.

Keywords : TLC-Densitometry, paracetamol, ibuprofen, validation method