A simple, sensitive, precise, and specific reversed phase high performance liquid chromatographic method was developed and validated for the detection of finasteride and tamsulosin in bulk and tablet dosage forms. It was found that the excipients in the tablet dosage forms do not interfere in the quantification of active drug by proposed method. The HPLC separation was carried out by reverse phase chromatography on Shimadzu HPLC, 10-At detector with hypersil ODS C18 Column 250 × 4.6 mm (particle size of 5 m) and constant flow pump. Rheodyne injector with 20 ml loop with a mobile phase composed in the ratio acetonitrile: (0.05M) KH2PO4 buffer (45:55) at flow rate 1.8 mL/minute. The detection was monitored at 240 nm. The linearity range was found between 125-625 mg/mL for Finasteride 10-50 mg/mL for tamsulosin and internal standard (bromhexine) 40 mg/mL were prepared by suitable dilutions of the stock solution with appropriate mobile phase. The interday and intraday precision was found to be within limits. The proposed method has adequate sensitivity, reproducibility and specificity for the detection of finasteride and tamsulosin in bulk and tablet dosage forms. LOD and LOQ for finasteride and tamsulosin were found to be 1.25, 4.166, and 0.495 and 1.635. Accuracy (recoveries: finasteride-100.76% and tamsulosin 99.06%) and reproducibility was found to be satisfactory.

A specific, rapid and simple UV spectrophotometric method with good sensitivity was developed and validated for the simultaneous detection of finasteride and tamsulosin in standard solutions and tablets. In methanol, the l max of finasteride and tamsulosin was found to be 219 and 224 nm respectively. Using an Elico UV-Visible spectrophotometer with matched quartz cells, in this proposed method both these drugs obeyed linearity individually and in mixture with the concentration range of 12.5- 62.5 mg/mL for finasteride and 1-5 mg/mL for tamsulosin with a correlation coefficient of 0.9981 and 0.9989. Assay results were in good agreement with label claim. The methods were validated statistically and by recovery studies. The relative standard deviation was found to be 0.5974 and 0.4096 with excellent precision and accuracy.
The attempt was made to develop analytical UV-visible spectroscopic method for detection of tamsulosin hydrochloride and finasteride combined tablet dosage form. The fixed dose combination tablets containing tamsulosin hydrochloride & finasteride are used to treat the symptoms of an enlarged prostate, a condition tech. known as benign prostatic hyperplasia. The solvent used for detection is methanol. Beer's and Lambert's law is obeyed in the concentration ranges of 10-60 mg/mL-1 and 10-60 mg/mL-1 for finasteride and tamsulosin hydrochloride, resp. for simultaneous equation method. The results of analysis were validated statistically and recovery studies confirmed the accuracy and reproducibility of the proposed methods which were carried out by following ICH guidelines. The proposed method was applied successfully to detect uniformity of contents in complete tablet formulations.

A new simple, precise, accurate and selective TLC-densitometry method has been developed for simultaneous determination of tamsulosin hydrochloride and finasteride in tablet dosage form. Chromatographic separation was performed on aluminum plate precoated with silica gel 60 F254 using toluene: n-propanol: triethylamine (3.0:1.5:0.2 vol./vol.) as mobile phase. Detection was carried out densitometrically at 260 nm. The RF value of tamsulosin hydrochloride and finasteride were 0.32 and 0.54, resp. The reliability of the method was assessed by evaluation of linearity which was found to be 200-1200 ng/spot for tamsulosin hydrochloride and 1000-6000 ng/spot for finasteride. Accuracy of the method was accessed by percentage recovery and found to be 99.77 ± 0.71 % for tamsulosin hydrochloride and 99.75 ± 0.86 % for finasteride. The method can be used for routine analysis of tamsulosin hydrochloride and finasteride in tablet dosage form.

Validated reversed-phase high-performance liquid chromatographic and high-performance thin-layer chromatographic methods for simultaneous analysis of tamsulosin hydrochloride and dutasteride in pharmaceutical dosage forms has been given. HPLC was performed on a C18 column with 85:15 (vv) methanol-0.02 M ammonium acetate buffer (pH 9.5, adjusted with triethylamine) as mobile phase. HPTLC was performed on aluminum foil-backed silica gel G60F254 layers with toluene methanol- triethylamine 9:1.5:1 (vol./vol./v) as mobile phase. In HPLC, quantification was achieved by photo diode-array (PDA) detection at 274 nm over the concentration range 1-20 mg/mL-1 for both; mean recovery was
98.18 ± 0.698 and 99.94 ± 0.611% for TAM and DUTA, resp. In HPTLC, quantification was achieved by UV detection at 280 nm over the concentration range 200-2000 ng per band for both; mean recovery was 99.66 ± 0.892 and 100.05 ± 1.012% for TAM and DUTA, respectively. These methods are simple, precise, and sensitive, and are suitable for simultaneous anal. of TAM and DUTA in tablet formulations.

A simple, economical, precise and accurate method for simultaneous detection of dutasteride (DUTA) and tamsulosin (TAM) in combined dosage form was developed. The first method is first order derivative spectroscopy method (Method A) in which derivative amplitudes were measured at selected wavelengths. Second method is area under curve spectrophotometry (Method B). The amplitudes at 247.67 nm and 232.60 nm in the first order derivative spectra were selected to detect DUTA and TAM, respectively and wavelength ranges 237.13-238.25 nm and 222.50-223.62 nm were selected to detect DUTA and TAM, respectively by AUC method in methanol. Beer's law is obeyed in the concentration ranges of 10-50 mg mL-1 and 8-40 mg mL-1 for DUTA and TAM, respectively in method A while 5-25 mg mL-1 and 4-20 mg mL-1 by DUTA and TAM, respectively in method B. The % assay for common formulation was found to be in the range 99.24-100.09% for DUTA and 99.89-101.12% for TAM by the proposed methods. Recovery was found in the range of 99.60-99.99% for DUTA and 100.02-101.09% for TAM by first order derivative spectroscopic method and 99.30-101.12% for DUTA and 99.52-101.25% for TAM by AUC method for both the formulations. The results of analysis have been validated statistically and recovery studies confirmed the accuracy and reproducibility of the proposed methods which were carried out by following ICH guidelines. The proposed methods were applied successfully to detect uniformity of contents in common capsule and tablet formulations.

A sensitive and selective liquid chromatography mass spectrometric (LC-MS-MS) method was developed for simultaneous identification and quantification of tamsulosin and dutasteride in human plasma, which was well applied to clinical study. The method was based on liquid-liquid extraction, followed by an Liquid chromatographic procedure with a Gemini C-18, 50 mm × 2.0 mm (3 mm) column and using methanol: ammonium formate (97:3, vol./vol.) as the mobile phase. Protonated ions formed by a turbo ionspray in possible mode were used to detect analytes
and internal standard MS-MS detection was by monitoring the fragmentation of 409.1 \(\rightarrow\) 228.1 (m/z) for tamsulosin, 529.3 \(\rightarrow\) 461.3 (m/z) for dutasteride and 373.2 \(\rightarrow\) 305.3 (m/z) for finasteride (IS) on a triple quadrupole mass spectrometer. The lower limit of quantification for both tamsulosin and dutasteride was 1 ng mL\(^{-1}\). The proposed method enables the unambiguous identification and quantification of tamsulosin and dutasteride for clinical drug monitoring.

Simple, accurate, precise, sensitive, and validated HPLC and HPTLC-densitometric methods were developed for simultaneous detection of amlodipine (AML), valsartan (VAL), and hydrochlorothiazide (HYD) in combined tablet dosage form. \(^8\) Method A, the gradient RP-HPLC analysis was performed on a Phenomenex Luna C18 (4.60 mm \(\times\) 150 mm, 5\(\mu\) particle size) column, using a mobile phase consisting of 10 mM ammonium acetate buffer (pH 6.7) and methanol in solvent gradient elution for 20 min at a flow rate of 1 mL/min-1. Quantification was carried out using a photodiode array UV detector at 238 nm. The employment of a diode array detector allowed selectivity confirmation by peak purity evaluation. Method B, the HPTLC anal. was carried out on an aluminum-backed sheet of silica gel 60F254 layers using chloroform: glacial acetic acid:n-Bu acetate (8:4:2, vol./vol./v) as the mobile phase. Quantification was achieved with UV densitometry at 320 nm. The analytical methods were validated according to International Conference on Harmonization (ICH) guidelines. No chromatographic interference from tablet excipients was found and hence these methods are applicable for simultaneous detection of AML, VAL, and HYD in pharmaceutical formulations and biological fluids.

A HPTLC method for the estimation of nebivolol (NBV) and hydrochlorothiazide (HCTZ) was developed. \(^9\) It employs aluminum backed silica gel 60 F254 TLC plates, (20 cm \(\times\) 10 cm, layer thickness 0.2 mm) pre-washed with methanol and mobile phase comprising of 1,4-dioxane:toluene:triethylamine (5:3:0.1 vol./vol.). The developing solvent was run Up to 80 mm in Camag chamber previously saturated with 10.0 mL of solvent mixture for 30 minutes. Densitometric scanning was then performed with Camag TLC Scanner-3 equipped with winCATS (version 1.3.0) at lmax 281 nm. The Rf values were found to be 0.75 and 0.43 for nebivolol and hydrochlorothiazide resp. The limit of detection and limit of quantitation were found to be 43 ng/spot & 130 ng/spot for nebivolol and 25 ng/spot & 76 ng/spot for hydrochlorothiazide respectively. The % Relative standard deviation of intra-day variation and
inter day variation were 0.54 and 0.41 respectively for NBV and 0.46 and 0.39 for HCTZ respectively. The proposed method can also be used for routine quality control to accurately detect nebivolol and hydrochlorothiazide in bulk and tablet dosage form.

A simple, rapid, and selective densitometric thin-layer chromatography (TLC) method has been established and validated for simultaneous quantitative analysis of olmesartan medoxomil and hydrochlorothiazide in the presence of olmesartan medoxomil degradation products. Chromatography was performed on aluminum foil-backed HPTLC plates coated with 0.2 mm layers of nano-silica gel 60 F254 as stationary phase. RF values of olmesartan medoxomil, its degradation products, and hydrochlorothiazide were significantly different when chloroform-methanol-formic acid 8:1.5:0.5 (vol./vol.) was used as mobile phase. Detection was performed at 260 nm and 272 nm for olmesartan medoxomil and hydrochlorothiazide, respectively. Regression plots revealed good linear relationships in the concentration range 0.05-1 mg/mL-1. Accuracy was checked by conducting recovery studies; average recovery was 100.35 ± 1.060 and 99.91 ± 1.154 for olmesartan medoxomil and hydrochlorothiazide, respectively. The amounts of the drugs in the dosage formulation were 102.78 ± 1.525% of the label claim for olmesartan medoxomil and 103.09 ± 1.259 for hydrochlorothiazide. Method validation was performed in accordance with USP guidelines.

Simultaneous quantification of nebivolol hydrochloride (NEB-H) and hydrochlorothiazide (HCT) in tablets by UV spectroscopy, RP-HPLC and HPTLC methods were developed. In UV spectrophotometric detection. NEB-H and HCT was quantified by simultaneous equation method and absorbance ratio method. In simultaneous equation method absorbance measurements at 282.5 nm (lmax NEB-H) and 271.5 nm (lmax HCT), in absorbance ratio method absorbance measurements at 282.5 nm and 275 nm (iso absorptive point) in methanol. In RP-HPLC method, the drugs were resolved using a mobile phase of 30 mM phosphate buffer (K2HPO4), acetonitrile and triethylamine (50:50:0.1% vol./vol.) with pH 5.5 using orthophosphoric acid on a C18-ODS-Phenomenex (5 mm, 250 mm × 4.6 mm) column in isocratic mode, Atorvastatin (ATR) used as a internal standard. The retention time of HCT, NEB-H and ATR was 3.31, 4.30 and 6.93 min respectively. In the HPTLC method, the chromatograms were developed using a mobile phase of Et acetate: methanol: ammonia
(8.5:1:0.5 vol./vol.) on precoated plate of silica gel 60 F254 and quantified by densitometric absorbance mode at 285 nm. The Rf of HCT and NEB-H were 0.21 and 0.41 resp. Recovery studies of 98.88-102.41%, percentage relative standard deviation of not more than 0.8 and correlation coefficient. (linearity range) of 0.9954- 0.9999 shows that developed methods were accurate and precise. These methods can be employed for the routine analysis of tablets containing NEB-H and HCT.

A new simple, accurate, and precise densitometric method for detection of olmesartan medoxomil (OM) and hydrochlorothiazide (HTZ) in combined tablet dosage forms was developed and validated. Separation of the drugs was carried out using chloroform-methanol-toluene 6:4:5 (V/V,) as mobile phase on precoated silica gel 60 F254 plates. The retention factors for HTZ and OM were 0.40 ± 0.019 and 0.58 ± 0.013, respectively. The detection of bands was carried out at 258 nm. The calibration curve was linear in the concentration range 100 to 600 ng per band for OM and 50 to 300 ng per band for HTZ. For OM, the recovery study results ranged from 99.92 to 100.82% with Relative standard deviation values ranging from 0.300 to 0.851%. For HTZ, the recovery results ranged from 99.21 to 100.34% with Relative standard deviation values ranging from 0.203 to 0.489%. The assay [%] was 99.989 ± 0.389 and 99.516 ± 0.303 for OM and 100.35 ± 0.609 and 100.17 ± 0.595 for HTZ (mean ± S.D., n = 6), respectively in 2 different tablet formulations tested. The method can be used for routine analysis of these drugs in combined tablet dosage forms in Quality Control Laboratory.

A simple, precise, accurate, and rapid high performance thin layer chromatographic method was developed and validated for the estimation of telmisartan and hydrochlorothiazide simultaneously in combined dosage forms. The stationary phase used was precoated silica gel 60F254. The mobile phase used was a mixture of chloroform: MeOH: toluene (2:5:5 vol./vol./v). The detection of spots was carried out at 272 nm. The method was validated in terms of linearity, accuracy, precision, and specificity. The calibration curve was found to be linear between 250 to 500 ng/spot for telmisartan and 200 to 700 ng/spot for hydrochlorothiazide. The limit of detection and the limit of quantification for the telmisartan were found to be 75 and 190 ng/spot,
respectively and for hydrochlorothiazide 55 and 150 ng/spot, respectively. The proposed method can be successfully used to detect the drug content of marketed formulation.

A simple, precise, accurate, and rapid high performance thin layer chromatographic method was developed and validated for the simultaneous estimation of irbesartan and hydrochlorothiazide in combined dosage forms. The stationary phase used was precoated silica gel 60F254. The mobile phase used was a mixture of acetonitrile: chloroform: glacial acetic acid (7:3:0.1 vol./vol./v). The detection of spots was carried out at 260 nm. The method was validated in terms of linearity, accuracy, precision, and specificity. The calibration curve was found to be linear between 100 to 700 ng/spot for irbesartan and 100 to 350 ng/spot for hydrochlorothiazide. The limit of detection and the limit of quantification for the irbesartan were found to be 30 and 100 ng/spot respectively and for hydrochlorothiazide 25 and 100 ng/spot respectively. The proposed method can be successfully used to detect the drug content of marketed formulation.