



SIMULTANEOUS ESTIMATION OF FAMOTIDINE AND IBUPROFEN IN PURE AND PHARMACEUTICAL DOSAGE FORM BY UV-VIS SPECTROSCOPY

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ABSTRACT

The aim of this work was to develop a new uv-vis spectrophotometric method for the determination of Ibuprofen and famotidine in combination dosage form. A simple, selective, accurate spectrophotometric method was developed and validated for the analysis of Ibuprofen and famotidine. The optimum conditions for the analysis of the drug were established. The maximum wavelength (λ_{max}) of Ibuprofen and famotidine were found to be 224nm and 266nm respectively. The percentage recovery of Ibuprofen and famotidine were 99.93±2.93 and 100.64±1.19 respectively. Beer's law were obeyed in the concentration range of 4-20µg/ml for Ibuprofen and 2-10µg/ml for famotidine. Calibration curves show a linear relationship between the absorbance and concentration. The line equation for Ibuprofen and famotidine were found to be $y = -0.0477x - 0.0134$, $R^2 = 0.9938$ and $y = -0.0263x - 0.0234$, $R^2 = 0.9801$ respectively. Validation was performed as per ICH guidelines for Linearity, accuracy, precision, LOD and LOQ. The proposed method may be suitable for the analysis of tablet formulation for quality control purposes.

KEY WORDS: - Famotidine, Ibuprofen, Method development, Spectroscopic determination.

INTRODUCTION

Ibuprofen (IBPA) is (RS)-2-(4-isobutylphenyl) propanoic acid. Its Mol. Formula $C_{13}H_{18}O_2$ Mol. Wt. 206.3 is a non-steroidal anti-inflammatory medication used especially for the relief of the symptoms of arthritis, primary dysmenorrhoea and fever, and as an analgesic, especially where there is an inflammatory component. Its side effects are gastrointestinal haemorrhage and ulceration.¹ Famotidine (FOD) is chemically 3-[(2-[(diaminomethylidene) amino]-1, 3-thiazol-4-yl) methyl] sulfanyl - N-sulfamoyl propanimidamide²; FOD is official in British Pharmacopoeia and United State Pharmacopoeia. It has an empirical formula $C_{14}H_{18}N_4O_2S_2$ and a molecular weight of 337.^{3,4,5} The FOD is an H_2 blocker that works by reducing the amount of acid produced by the stomach because IBPA has a tendency to cause ulcers. FOD is added in combination to reduce the risk for ulcers.⁶ The combination dosage form of IBPA and FOD is available in the market and it is indicated in the treatment of Osteoarthritis and Rheumatoid arthritis. Because IBPA has a tendency to cause ulcers, FOD is added in combination to reduce the risk for ulcers.

A literature survey regarding quantitative analysis of these drugs revealed that attempts have been made to develop analytical methods for the estimation of IBPA alone and in combination with other drugs by liquid chromatographic (LC)^{7,8}, UPLC-MS/MS⁹, HPTLC^{10,11}, super critical fluid chromatography¹² and spectrophotometric methods^{13,14}, kinetic spectrophotometry¹⁵ potentiometric indications.^{16,17} For FOD literature survey revealed that liquid chromatographic (LC)¹⁸, HPTLC¹⁹ and spectrophotometric methods²⁰ have been reported for the estimation of FOD.

However there is no method reported for the simultaneous estimation of these drugs in combined dosage forms. Fixed dose combination containing IBPA (800 mg) and (FOD) 26.6 mg is available in the tablet form in the market. The aim of this work was to develop a uv-vis method for the

simultaneous estimation of IBPA and FOD in pharmaceutical dosage forms. The present method was validated following ICH guidelines.¹⁸

EXPERIMENTAL

APPARATUS

A Shimadzu model 1800 double beam UV/Visible spectrophotometer with spectral width of 1 nm, wavelength accuracy of ± 0.1 nm and a pair of 10 mm matched quartz cell was used to measure absorbance of all the solutions. Spectra were automatically obtained by UV-Probe system software.

REAGENTS AND MATERIALS

All chemicals and reagents were used of AR grade. Authentic IBPA and FOD were obtained as gift samples from Glenmark Pharmaceutical Mumbai. Tablet formulation containing labelled amount of 800 mg of IBPA and 26.6 mg of FOD was used for the study.

SELECTION OF DETECTION WAVELENGTH

Solution of each drug in acetonitrile was scanned over the range of 200-400 nm. It was observed that both the drugs showed considerable absorbance at 224 nm for IBPA and 266nm for FOD was selected as the wavelength for detection.

PREPARATION OF STANDARD STOCK SOLUTIONS

IBPA and FOD were weighed (100 mg each) and transferred to two separate 100ml volumetric flasks and dissolved in 20 ml of methanol and make up the volume up to the mark with distilled water and the final concentration of solution containing 1000 µg/mL of IBPA and FOD, respectively.

PREPARATION OF WORKING SOLUTIONS

Aliquot from the stock solutions of IBPA and FOD were appropriately diluted with distilled water to obtain working standard 100 µg/ml of IBPA and FOD.

METHOD VALIDATION

The method was validated for accuracy, precision, linearity, detection limit, quantitation limit and robustness.

Monograph: Prolonged-release Ibuprofen Tablets Prolonged-release Ibuprofen Capsules Ibuprofen Tablets Ibuprofen Oral Suspension Ibuprofen Gel.Ibuprofen CRS. D. Thin-layer chromatography (). Test solution. Ibuprofen Gel. Ibuprofen Oral Suspension. Ibuprofen Tablets. British.Items 1 - 20 british pharmacopoeia ibuprofen gel Ibuprofen Oral Suspension Ibuprofen Gel Ibuprofen Cream Medicines & Healthcare products Regulatory.Items 1 - 20 british pharmacopoeia ibuprofen gel Welcome to the new British Pharmacopoeia website You can find out more by watching our short video.British Pharmacopoeia Volume III; Formulated Preparations: Specific Monographs Ibuprofen Gel is a solution of Ibuprofen in a suitable water- miscible basis.Nifedipine British Pharmacopoeia. pdf Download as PDF File octadecylsilyl silica gel for chromatography Film Coated vs Sugar Coated Ibuprofen tablet.Items 1 - 20 Ibuprofen Monograph British Pharmacopoeia. The scope of the series has recently been expanded to include profiles of excipient materials. Contact.Preparation of Ibuprofen gel in various concentrations of polymer base. .. British Pharmacopoeia cfu United States Pharmacopoeia National Formulary.Items 1 - 20 monograph british pharmacopoeia. The results Suspension Ibuprofen Gel Ibuprofen Cream Medicines & Healthcare products Regulatory Agency.Ibuprofen British Pharmacopoeia (BP) Reference Standard; CAS Number: ; EC Number: ; Synonym: ?-Methyl(isobutyl)phenylacetic.Buy Ibuprofen Assay Standard - CAS Number from LGC Standards. Please British Pharmacopoeia CRS. > See respective official monograph(s) .Pharmaceutical composition containing ibuprofen and aluminium hydroxide . description of Aluminium Hydroxide Gel BP, and the British Pharmacopoeia .An example method which is appropriate for rac-ibuprofen tablets and Thin -Layer Chromatographic Methods of Analysis The British Pharmacopoeia specifies of general method () and uses silica gel H as the coating substance.out so far and led to the preparation of the draft monograph. 7 Westferry Circus .. There is a WHO monograph on Arnicae flos, which was developed with reference to the British Herbal .. Ibuprofen Gel 5%. (Optifen) was.Nifedipine - British quickandeasywebdesign.com - Download as PDF File .pdf), Text File . txt) or read online. Plate TLC silica gel F plate R.1 M perchloric acid is required (0. D.0 mL with the mobile . Film Coated vs Sugar Coated Ibuprofen tablet.Assay of Promethazine hydrochloride tablets by British Pharmacopoeia (BP) Ibuprofen Cream, Ibuprofen Gel, Ibuprofen Oral Suspension, and Ibuprofen .Ibuprofen C13H18O2 CID - structure, chemical names, physical and Trauma Dolgit Gel; Trauma-Dolgit Gel; TraumaDolgit Gel; Zinc Salt Ibuprofen . Ibuprofen, British Pharmacopoeia (BP) Reference Standard Zdiethylamine gel products available on the Brazilian pharmaceutical market, using the vertical diffusion cell method. . accordance with the limits set by the British Pharmacopoeia .. permeation of ibuprofen across synthetic membranes using.Ibuprofen gel, Product's satisfaction, Descriptive statistic, SPSS cially listed in the United States Pharmacopeia (USP) and the British Pharmacopoeia. (BP) and .Final text for addition to The International Pharmacopoeia International Pharmacopoeia.

Tablets . such as silica gel, or in unit dose packaging (blister cards).

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