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Research Article

Analytical Method Development and Validation of Clotrimazole and Mometasone Furoate in Its Bulk and Pharmaceutical Dosage Form BY RP-HPLC

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ABSTRACT

A Novel, Simple, Sensitive, and Economic Revers-phase high-performance liquid chromatography (RP-HPLC) method has been developed and validated for simultaneous estimation of Clotrimazole and Mometasone Furoate in bulk and pharmaceutical dosage form. The Chromatographic condition was carried out by using Agilent C18 column (250 mm length x 4.6mm, 5 μ m Particle Size) with a mobile phase consisting of Methanol: (0.1%OPA) Water (75: 25 % v/v). The pH 3 was adjusted by using OPA. The detection was carried out at 230nm and retention time of Clotrimazole and Mometasone furoate was found to be 3.339 min and 7.848 min at a flow rate of 1.0 mL/min with the run time of 18 min. Linearity was observed from 20 to 100 μ g/mL for Clotrimazole and 2-10 μ g/mL for Mometasone furoate with excellent R² value of 0.999 and 0.999 with equation, $y=22.39x+33.15$ and $y=49.02x+5.664$ respectively. The % Relative standard deviation for approach precision is less than 2.0 %. The Detection Limit and Quantitation Limit of Clotrimazole and were found to be 0.100 μ g/mL and 0.304 μ g/mL respectively. The Detection Limit and Quantitation Limit of Mometasone furoate were found to be 0.029 μ g/mL and 0.088 μ g/mL respectively. The developed chromatographic method was validated with respect to the ICH Q2 (R2) guidelines for Linearity, Precision, Range, Accuracy, Robustness, Detection Limit, and Quantitation Limit. The result which are obtained from the method validation were within the acceptable limit as per ICH guidelines. The developed RP-HPLC method takes much less time it can be used in the industry for routine quality control analysis of Clotrimazole and Mometasone furoate bulk drugs.

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INTRODUCTION

Analytical chemistry is the science of examining materials to determine their chemical composition and structure. Over recent decades, significant advances have been made in both the complexity and instrumentation of analytical techniques, driven by the increasing demand for high-quality data in fields such as pharmaceuticals, environmental analysis, and forensic science. As regulations in drug testing and approval have become more stringent, the need for innovative analytical methods has surged. Techniques like High-Performance Liquid Chromatography (HPLC), Gas Chromatography-Mass Spectrometry (GC-MS), and Liquid Chromatography-Mass Spectrometry (LC-MS) are now indispensable tools in analytical laboratories, offering enhanced sensitivity, precision, and speed.[1]-[8]. In modern analytical chemistry, instrumental analysis plays a central role, with diverse methods tailored to specific analytical requirements. From UV/VIS spectrophotometry to advanced chromatography techniques, each method offers unique advantages in terms of separation, detection, and quantification of compounds. Chromatography, for example, encompasses a wide range of

techniques such as normal-phase, reversed-phase, ion-exchange, and size-exclusion chromatography, each designed to address different types of sample matrices and separation challenges. High-Performance Liquid Chromatography (HPLC), in particular, stands out for its versatility and efficiency in separating complex mixtures, making it a critical tool in both qualitative and quantitative analysis.[9]-[10] The evolution of analytical instrumentation has brought about more stringent requirements for method validation, ensuring that analytical methods meet the criteria of accuracy, precision, specificity, and robustness. Regulatory guidelines from agencies such as the FDA, ICH, and USP provide a framework for method validation, focusing on critical parameters such as limit of detection (LOD), limit of quantitation (LOQ), and linearity. These validation processes are essential for ensuring that analytical methods are fit for their intended purpose, providing reliable results in a wide range of applications. As analytical techniques continue to evolve, the integration of cutting-edge technologies and adherence to rigorous validation standards will remain pivotal in advancing the field of analytical chemistry.[10]-[13].

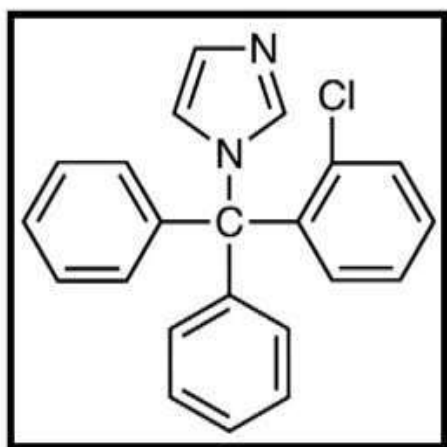


Figure no. 1 Structure of Clotrimazole

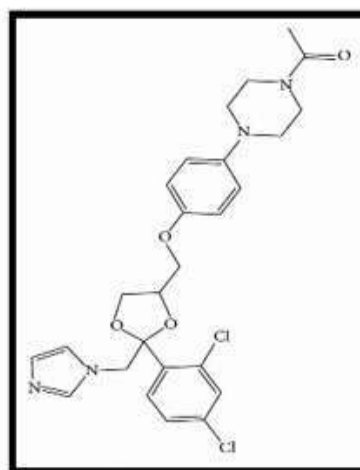


Figure no. 2 Structure of Mometasone Furoate.

MATERIALS AND METHODS:

Drugs:

Clotrimazole and Mometasone furoate are taken from Bini Laboratories, Pvt. Ltd., Nashik.

Reagents:

All reagents and solvents Methanol, Acetonitrile, water and Ortho-phosphoric Acid (OPA) are supplied by Alpha Chemicals HPLC grade

Instruments:

1. UV – Visible Spectrophotometer - Shimadzu UV 1800 Make Japan
2. HPLC system - Model No. Waters system-2695 Make Agilent
3. Analytical Balance - Model CY 224

Mobile phase preparation:

The mobile phase for the chromatographic analysis was prepared by optimizing the composition of solvents and buffers to achieve the best resolution. Initially, water was used along with various buffers, including phosphate, to assess the separation efficiency. In trials, methanol was tested as a solvent, but it resulted in poor peak resolution and broad peak shapes. A shift to acetonitrile improved both the peak shape and theoretical plates, reducing tailing. For further optimization, a mobile phase mixture of methanol and (0.1%OPA) water in a 75:25 v/v ratio, with pH adjusted to 3, was found to provide the best results in terms of resolution and peak symmetry. This mobile phase composition was utilized with the Agilent Column C18 (250 x 4.6 mm, 5 μ m) for optimal separation and detection of both Clotrimazole and Mometasone furoate at 230 nm.

Standard Stock Solution Preparation:

To prepare the standard stock solution, 50 mg of Clotrimazole and 5mg Mometasone furoate were weighed separately and transferred into a 100 mL volumetric flask. The substances were dissolved in 25 mL of methanol, and the flask was sonicated for 10 minutes (two cycles of 5 minutes each) to ensure complete dissolution and the solution was filtered through a 2000 μ g/ml Clotrimazole and 200 μ g/ml Mometasone furoate. The prepared stock solution was analyzed.

Preparation of sample solution:

For the analysis of the marketed formulation, cream containing Clotrimazole and Mometasone furoate was weighed and extracted using methanol. An accurately weighed quantity of the sample, equivalent to 50 mg of Clotrimazole and 5 mg of Mometasone furoate, was transferred into a 25 ml volumetric flask. The volume was made up to the 25 ml mark with methanol. The solution was then sonicated to ensure complete dissolution. It was subsequently filtered through a 0.45 μ m membrane filter. From the resulting stock solution, 4 ml and 0.4 ml were pipetted into a 10 ml volumetric flask and the volume was made up to the mark with methanol, yielding a test solution containing 80 μ g/ml of Clotrimazole and 8 μ g/ml of Mometasone furoate.

Selection of working wavelength:

The standard solution was scanned between 200-400nm. The wavelength of maximum absorption was determined for drugs Rosuvastatin Calcium and Fenofibrate showed Isobestic point at 230nm.

Method Development

In order to improve chromatographic conditions and produce a symmetrical peak and improved drug resolution, a number of system



appropriateness parameters were examined. The mobile phase includes acetonitrile: water pH modified with % OPA (70:30 v/v) at a flow rate of 1.0 mL/min. produced the more symmetrical and resolved peaks at 230 nm as given in figure 3 This

was achieved by combining several appropriate solvents in different ratios to optimize the mobile phase. Table 1 lists the ideal chromatographic conditions.^{[4][5][8][12]-[16]}.

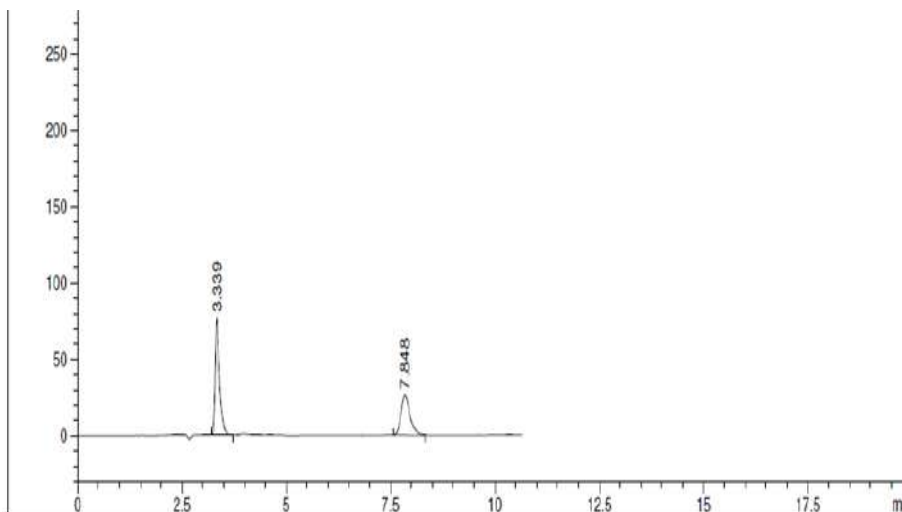


Figure 3: The developed chromatogram of the optimized method for Clotrimazole and Mometasone furoate.

Table 1. Optimum conditions for chromatography

| Parameters | Description |
|----------------------|---------------------------------------------|
| Instrument | AGILENT 1100 |
| Column | C ₁₈ (AGILENT) |
| Detector | DAD Detector |
| Column temperature | 33 °C |
| Detection wavelength | 230nm |
| Flow rate | 1ml/min |
| Injection volume | 20 |
| Mobile phase | Methanol:(0.1%OPA) Water (75:25% v/v) |
| Retention time | CL-3.339 & MF-7.848 |

Method Validation The suggested methods validation was completed in accordance with ICH Q2 (R1) requirements, and validation metrics included system suitability parameters, LOD, LOQ, robustness, specificity, precision, accuracy and linearity.^{[4][5][8][10][12]-[16]}

Specificity

Specificity is the ability to access unequivocally the analyte in the presence of components which may be expected to be present. The following solutions were prepared and injected to prove the specificity nature of the method.

1. Blank (Methanol as a diluent)
2. Standard solution
3. Sample solution

Linearity:

Linearity was performed by diluting the stock solution to give final concentrations of 20µg/ml to 100 µg/ml for Clotrimazole and 2 µg/ml to 10µg/ml for Mometasone furoate. 0.5ml of standard stock solution was pipette out and transferred into 10 ml volumetric flasks and the remaining volume was adjusted with methanol to give 100µg/ml Clotrimazole. 0.5ml of standard stock solution was pipette out and transferred into 10 ml volumetric flasks and the remaining volume

was adjusted with methanol to give 10µg/ml Mometasone furoate. Similarly, other dilutions are also prepared for analysis. 20 µl of each concentration was injected and a calibration curve was plotted as peak area vs. concentration.

Precision:

The precision of the method was assessed by using intra-day and inter-day precision. The acceptance criteria of both methods is %RSD is < 2% for test results. The precision of the method was assessed by examining intraday and interday variations. Intraday precision was determined by analyzing six samples of Rosuvastatin Calcium and Fenofibrate at 5 µg/mL concentrations within a single day, with the acceptance criterion set at % RSD (Relative Standard Deviation) not exceeding 2.0%. For interday precision, the same samples were analyzed on different days by another analyst, with the same % RSD acceptance limit. The % recovery was calculated for each sample to evaluate the consistency of the results, ensuring the precision and reproducibility of the analytical method.

Accuracy:

Accuracy is expressed as % recovery. The percentage recovery was obtained by adding known amounts of Rosuvastatin Calcium and Fenofibrate standard at three different concentrations (e.g., 80%, 100%, and 120%) to pre-analyzed samples.

Limit of Detection and Limit of Quantification:

The standard deviation and the slope of the calibration curve were used to determine the LOD and LOQ. By using the slope approach, the methods sensitivity to the LOD and LOQ for Rosuvastatin Calcium and Fenofibrate was determined. LOD and LOQ were computed with $LOD = 3.3\sigma/S$ and $LOQ = 10\sigma/S$, where S is the slope of the standard curve and σ is the standard deviation.

Robustness:

The robustness of the approach was confirmed by deliberately altering the process specifications, including the mobile phase, detecting wavelength and flow rate.

Assay:

Estimation of Rosuvastatin and Fenofibrate in Bulk by RP-HPLC. Rosuvastatin Calcium and Fenofibrate concentration was estimated to use a relatively homogenous standard stock solution. Calculate the percent recovery and percentage of Relative standard deviation.

RESULTS AND DISCUSSION:

Specificity

The developed chromatogram of the optimized method for Clotrimazole and Mometasone furoate for standard drug solutions, as illustrated in Figure 2, shows that the blank has no peak at the retention time of Clotrimazole and Mometasone furoate, indicating that the peaks obtained in the standard solutions at working concentrations are solely due to the drugs.

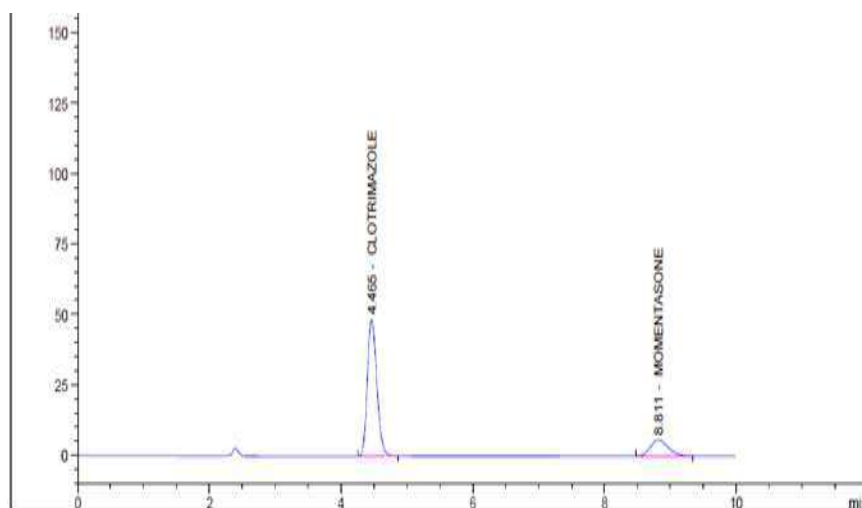


Figure 4: Chromatogram of Specificity-Standard

2)Linearity: Drug was found to be linear in the concentration range of 20-100µg/ml for CL and 2-10µg/ml for MF. Results obtained are shown in

following Table and calibration plot obtained was shown in Fig.5 and 6.

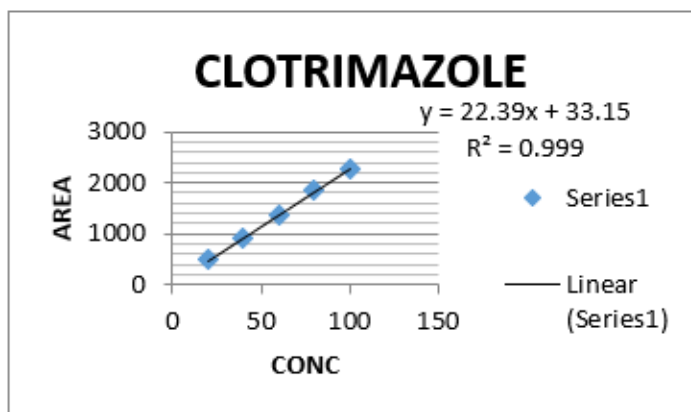


Figure no. 5 Calibration Curve of CL

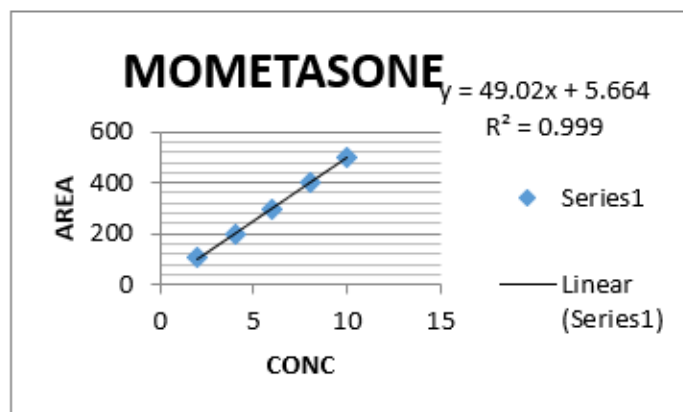


Figure no. 6 Calibration Curve of MF

Precision:

Intra-day and inter-day precision assures the repeatability of test results. The % RSD found was

below 2. Result of intra-day and inter-day precision was shown in Table no.2 & Table no. 3 & Table no. 4 respectively.

Table no. 2 Analytical data Intraday Precision of Clotrimazole and Mometasone furoate.

| Sr. No. | Standard Conc ⁿ (µg/mL) | Area | | Mean | | SD | | RSD | |
|---------|------------------------------------|--------|--------|----------|----------|-------|-------|-------|-------|
| | | CL | MF | CL | MF | CL | MF | CL | MF |
| 1 | 40CL+4MF | 483.59 | 105.03 | 484.1664 | 105.2332 | 0.642 | 0.205 | 0.132 | 0.194 |
| 2 | | 484.86 | 105.44 | | | | | | |
| 3 | | 484.05 | 105.23 | | | | | | |

| | | | | | | | | | |
|---|----------|---------|--------|----------|----------|-------|--------|-------|-------|
| 1 | 60CL+6MF | 1354.23 | 294.64 | 1355.23 | 294.9263 | 0.896 | 0.5315 | 0.066 | 0.180 |
| 2 | | 1355.96 | 295.54 | | | | | | |
| 3 | | 1355.50 | 294.60 | | | | | | |
| 1 | 80CL+8MF | 2268.47 | 496.07 | 2270.513 | 496.6494 | 2.05 | 0.919 | 0.090 | 0.185 |
| 2 | | 2272.57 | 496.71 | | | | | | |
| 3 | | 2270.50 | 496.17 | | | | | | |

Table no. 3 Analytical data Interday Precision Clotrimazole and Mometasone furoate

| Sr. No. | Standard Conc ⁿ (µg/mL) | Area | | Mean Area | | SD | | %RSD | |
|---------|------------------------------------|---------|--------|-----------|---------|-------|-------|--------|-------|
| | | CL | MF | CL | MF | CL | MF | CL | MF |
| 1 | 40CL+4MF | 483.21 | 105.65 | 483.5266 | 105.343 | 0.330 | 0.310 | 0.0684 | 0.294 |
| 2 | | 483.87 | 105.03 | | | | | | |
| 3 | | 483.50 | 105.35 | | | | | | |
| 1 | 60CL+6MF | 1359.23 | 295.65 | 1358.22 | 295.079 | 1.005 | 0.820 | 0.073 | 0.277 |
| 2 | | 1357.22 | 294.14 | | | | | | |
| 3 | | 1358.21 | 295.45 | | | | | | |
| 1 | 80CL+8MF | 2271.02 | 495.12 | 2272.02 | 495.062 | 1 | 0.976 | 0.044 | 0.197 |
| 2 | | 2273.02 | 496.01 | | | | | | |
| 3 | | 2272.02 | 494.06 | | | | | | |

Table no. 4 Analytical data of Repeatability for Clotrimazole and Mometasone furoate

| Sr.No | Conc.(µg/mL) | Area CL | Area MF |
|-------|--------------------|-----------------------|-----------------------|
| 1 | 40 CL+ 4MF | 918.260 | 201.600 |
| 2 | | 916.570 | 201.810 |
| 3 | | 917.440 | 202.400 |
| 4 | | 918.130 | 201.720 |
| 5 | | 916.820 | 202.510 |
| 6 | | 917.220 | 202.560 |
| | | Mean: 917.4065 | Mean: 202.0996 |
| | SD: 0.682 | SD: 0.435 | |
| | %RSD: 0.074 | %RSD: 0.215 | |

Accuracy:

As per ICH, Accuracy High - performance liquid chromatography and UV Spectroscopy methods

have been determined through the recovery studies at three levels using standard addition methods.



Table no. 5 Result and statistical data of accuracy for Clotrimazole

| Level | Conc. (µg/ml) | Std added (µg/ml) | Area obtained | Std. Area (Mean) | Amount found | %Recovery | SD | %RSD |
|-------|---------------|-------------------|---------------|------------------|--------------|-----------|-------|-------|
| 80% | 20 | 16 | 840.06 | 841.043 | 36.04 | 100.24 | 0.276 | 0.274 |
| | 20 | 16 | 842.03 | | 36.08 | 100.79 | | |
| | 20 | 16 | 841.04 | | 36.06 | 100.47 | | |
| 100% | 20 | 20 | 924.830 | 925.673 | 39.8249 | 99.12 | 0.196 | 0.197 |
| | 20 | 20 | 926.540 | | 39.901 | 99.51 | | |
| | 20 | 20 | 925.650 | | 39.866 | 99.28 | | |
| 120% | 20 | 24 | 1015.780 | 1015.953 | 43.8870 | 99.53 | 0.220 | 0.221 |
| | 20 | 24 | 1015.56 | | 43.8771 | 99.49 | | |
| | 20 | 24 | 1016.65 | | 43.988 | 99.89 | | |

Limit Of Detection (LOD) And Limit of Quantification (LOQ):

Clotrimazole

$$QL = 10 \times 0.682 / 22.39 = 0.304 \mu\text{g/ml}$$

The QL of CL was found to be 0.304 µg/ml

Mometasone Furoate

$$QL = 10 \times 0.435 / 49.02 = 0.088 \mu\text{g/ml}$$

The QL of MF was found to be 0.088 µg/ml

Table no. 6 Result of Detection and Quantitation limit for CL and MF

| Parameter | Clotrimazole | Mometasone furoate |
|--------------------|--------------|--------------------|
| Detection Limit | 0.100 | 0.029 |
| Quantitation Limit | 0.304 | 0.088 |

Robustness:

Robustness studies, which revealed that changes in wavelength, Flow rate, pH have no effect on the outcome. and a percent RSD less than two percent to indicate that the results do not vary with wavelength changes, Flow rate and Mobile phase.

Table no. 7 Result of Robustness for SD and RSD

| Sample Name | Parameter | Mean Area | SD | %RSD |
|-------------|---------------------|-----------|--------|-------|
| CL | Flow rate- 0.9 | 1368.456 | 1.4118 | 0.103 |
| | Flow rate- 1.1 | 1365.496 | 1.0800 | 0.079 |
| MF | Flow rate- 0.9 | 273.3804 | 1.556 | 0.569 |
| | Flow rate- 1.1 | 275.813 | 1.746 | 0.569 |
| CL | Wavelength 229 | 1370.736 | 1.566 | 0.114 |
| | Wavelength 231 | 1367.85 | 1.0535 | 0.077 |
| MF | Wavelength 229 | 285.0788 | 1.005 | 0.352 |
| | Wavelength 231 | 286.2585 | 1.140 | 0.352 |
| CL | Mobile phase(74+26) | 1372.753 | 0.820 | 0.059 |
| | Mobile phase(76+24) | 1365.85 | 1.026 | 0.075 |
| MF | Mobile phase(74+26) | 261.347 | 1.276 | 0.488 |
| | Mobile phase(76+24) | 257.299 | 0.887 | 0.344 |



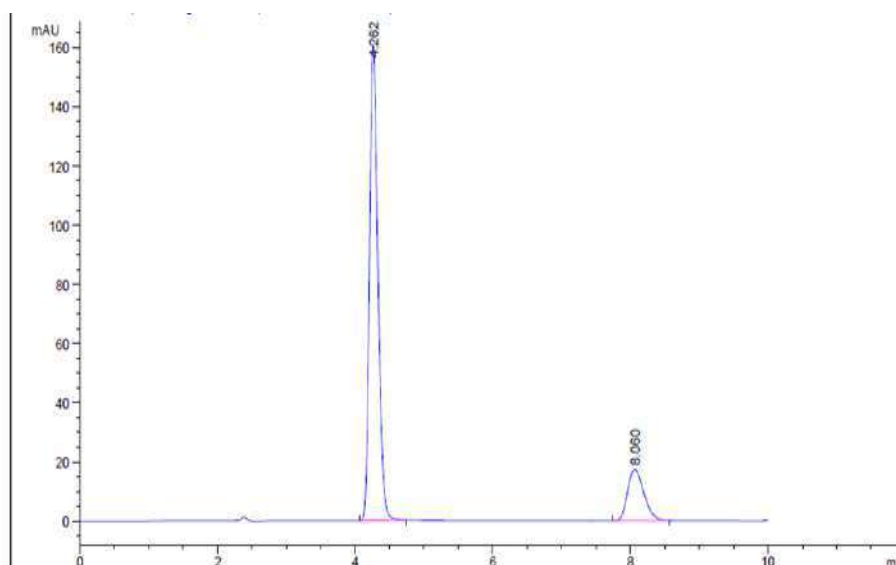


Figure no. 7: Chromatogram of Change in Flow rate.

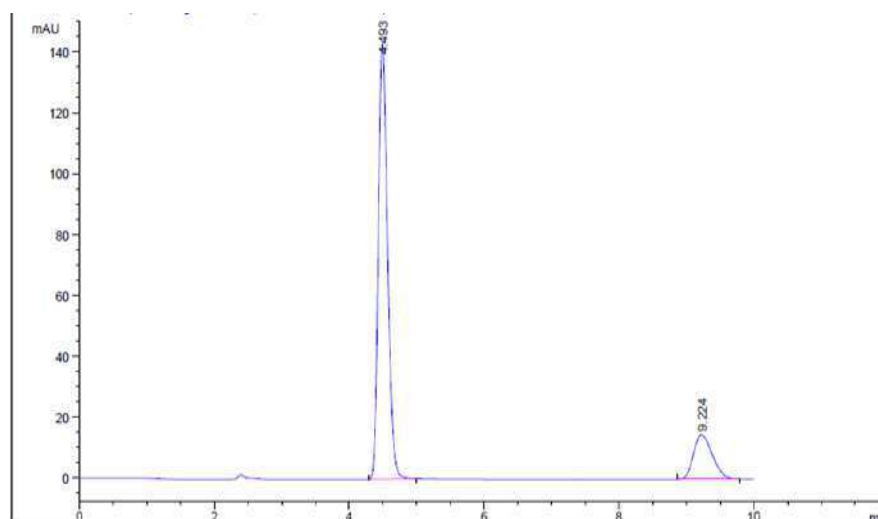


Figure no. 8: Chromatogram of Change in Wavelength.

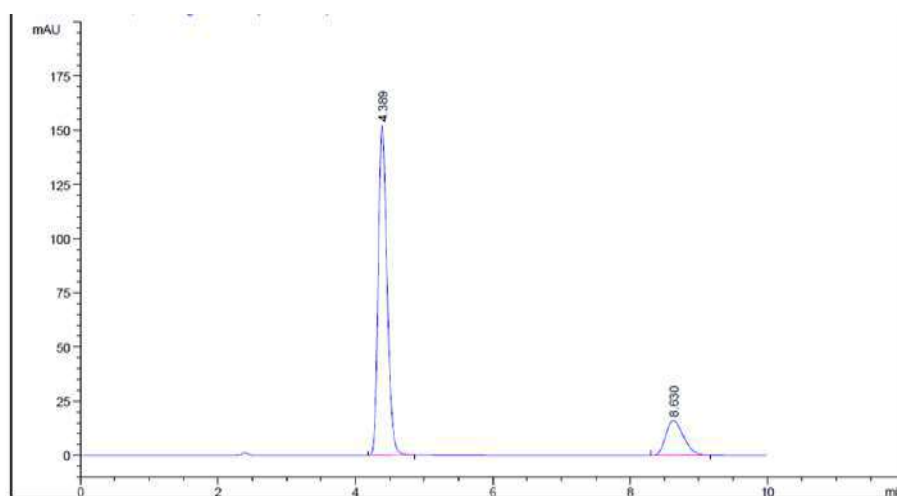


Figure no. 8: Chromatogram of Change in Mobile phase.

Assay

The percentage purity of Rosuvastatin Calcium and Fenofibrate by and for the HPLC System was found to be 100.20 and 99.39%.

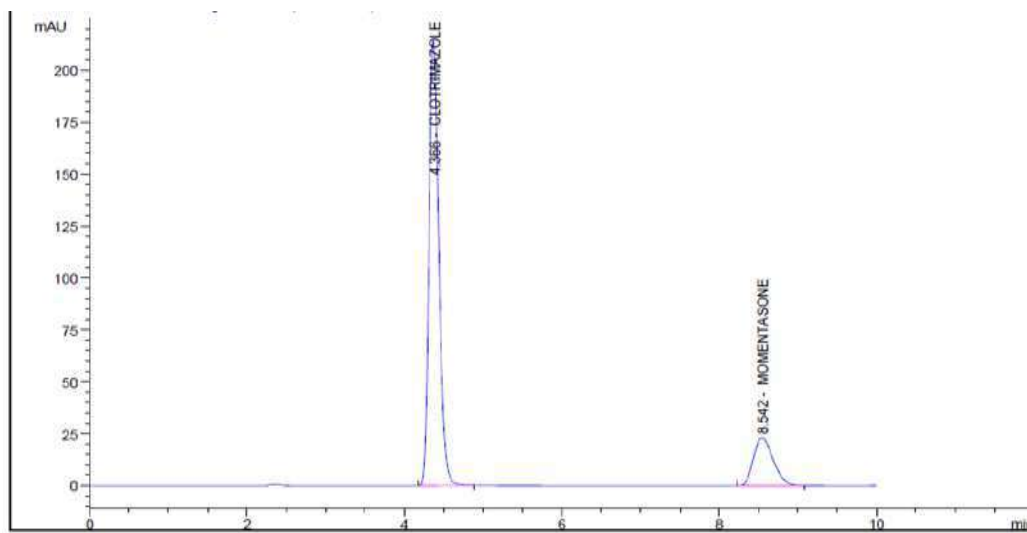


Figure no. 9 Typical chromatogram of standard

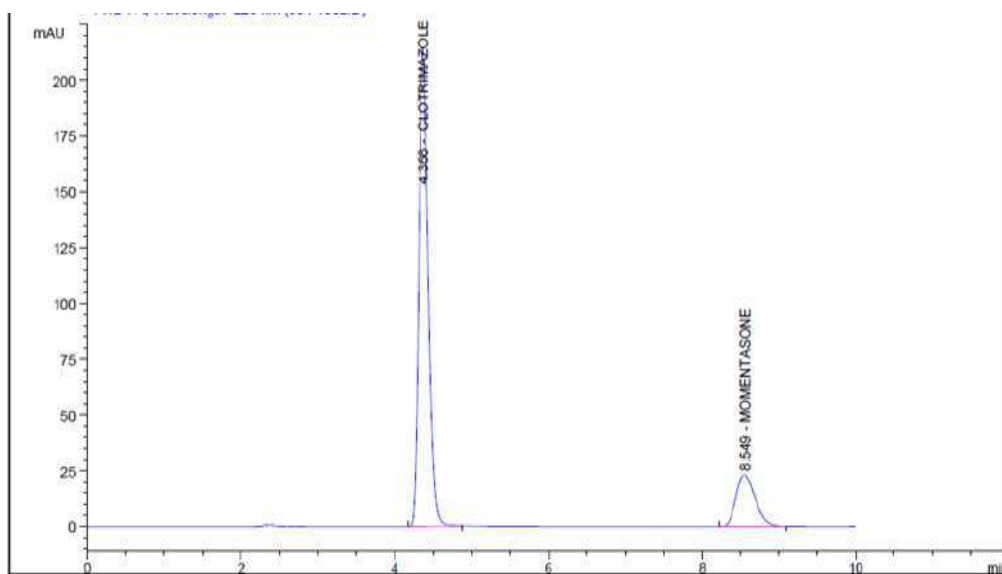


Figure no.10 Typical chromatogram of Test

SUMMARY AND CONCLUSIONS

The present work deals with the Development and validation of RP-HPLC using for determination of Clotrimazole and Mometasone furoate by pure and Cream dosage form.

Summary of RP-HPLC method:

Attempts were made to develop RP-HPLC for estimation of Clotrimazole and Mometasone furoate from cream. For the RP - HPLC Agilent (1100 Infinity II) method Gradient System DAD Detector and C18 column with 250mm x4.6 mm I'd and 5 μ m particle size methanol: (0.1% OPA) water (75:25% v/v) was used as the mobile phase for the method. The detection wavelength was 230 nm and flow rate was 1.0 ml/min. In the developed

method, the retention time of Clotrimazole and Mometasone furoate were found to be 3.339 min, and 7.848 min. The developed method was validated according to the ICH guidelines. The linearity, precision, range, robustness was within the limits as specified by the ICH guidelines. Hence the method was found to be simple, accurate, precise, economic and reproducible. So, it is worthwhile that, the proposed methods can be successfully utilized for the routine quality control analysis Clotrimazole and Mometasone furoate in bulk drug as well as in formulations.

CONCLUSION

A novel, simple, rapid, and cost-effective RP-HPLC method was successfully developed for the simultaneous determination of Clotrimazole and Mometasone furoate. The proposed method was optimized and validated across various experimental parameters. The influence of mobile phase, pH, column temperature, and different particulate columns on the analysis of Clotrimazole and mometasone furoate was thoroughly evaluated. All analytes were well resolved and separated in under 10 minutes. The developed method conveniently employed by quality control laboratories to determine the content of Clotrimazole and Mometasone furoate in routine testing samples. It is also suitable for analyzing these drugs in pharmaceutical preparations with slight modifications to the extraction procedure. Overall, the proposed method offers high throughput for the simultaneous estimation of Clotrimazole and Mometasone furoate with excellent accuracy, precision, selectivity, and reproducibility, making it a valuable tool for routine, quality control and regulatory compliance.

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Conflict of Interest:

The authors declare that there is no conflict of interest.

Abbreviations:

LOD – Limit of Detection

LOQ – Limit of Quantification

CL – Clotrimazole

MF – Mometasone furoate

nm – Nanometer

ug/ml – microgram per millimeter

REFERENCES

1. Beckett A.H, Analytical Chemistry and Practical Chemistry. 1996; 14th ed. –Vol-2.: 275-95.
2. Skoog D.A, Holler F.J, Timothy A, Nieman N.W, Principle of instrumental Analysis. Eastern Press, Bangalore 2004; 5th ed.: 1-4, 729-35.
3. Willard H.H, Merritt L.L, Dean J.A, Settle Jr.F.A, Instrumental Methods of analysis. CBS Publishers and distribution, Delhi, 2001; 7th ed.: 118-19 ..Christan G.D, Analytical chemistry. John Wiley and sons. 2003; 6th Edn:1-3.
4. Chatwal G.R, Sharma A, Instrumental Method of chemical Analysis. Himalaya Publishing House Delhi 2004; 5th ed.: 1.1-1.5..Jeffery G.H, Bassat J, Mendham J, Denny R.C., Vogel's textbook of Quantitative Chemical Analysis. Elbs with Longman Publication Harlow, 1989; 5th ed.:1-6.
5. Snyder, L.R, Joseph J.K, Joseph L.G, Practical HPLC Method Development. A Wiley-



- Interscience publication, New York; 2ndedi: 3-35.
6. Ojeda C.B, Rojas F.S, *Analytical Chemistry Acta*. 2004;1-24..ICH, Q2A, Text on validation of analytical Procedures International Conference on harmonization, Geneva, 1994 October,1-5.
 7. ICH, Q2B, Validation of analytical Procedure: Methodology, International conference on Harmonization, Geneva, 1996 November,1-8.
 8. ICH, Q2R1, Text on validation of analytical Procedures International Conference on harmonization, Geneva, 1994 October,1-13.
 9. Ravisankar P, Navya CN, Pravallika D, Sri DN. A Review on Step-by-Step Analytical Method Validation. *J Pharm* 2015;5(10):7–1.
 10. Rina R, Baile M, Jain A. A Review : Analytical Method Development and Validation. *Syst Rev Pharm* 2021;12(8):450–4...Rajan V. Development and validation of HPLC method - A Review. *Int J Curr Res Pharm*. 2015;1(2):55–68.
 11. Analytical Procedure Development Q14 International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use,2022.
 12. Ahimiwal SM, Thorat DB, Jain NP, Jadhav VB, Patil PB. A review on high performance liquid chromatography. *Int J Pharm Res*. 2013;5(3):1–6. B R. A Brief Review on Different Chromatographic Techniques. *Open Access J Pharm Res*.2024;8(1).
 13. Bhirde VM, Patil VM, Patil S V, Chromatography L. Study of High Performance Liquid. 2021;9(6):879–94.
 14. Zotou A. An overview of recent advances in HPLC instrumentation. 2012;10(3). Taylor P, Swartz M. *Journal of Liquid Chromatography & HPLC Detectors: Brief Review*. 2010;(July 2012):37–41.
 15. International Conference on Harmonization (ICH) Tripartite Guidelines. ICH Q2(R2): VALIDATION OF ANALYTICAL PROCEDURES. In 2022. p. 1–24.
 16. International Conference on Harmonization (ICH) Tripartite Guidelines. ICH Q14: ANALYTICAL PROCEDURE DEVELOPMENT. In 2022. p. 1–61.
 17. Indian pharmacopoeia comission. Indian pharmacopoeia government of india, ministry of health & family welfare. Vol. II. 2022. 1603–1604 p.

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