International Journal of Pharmacology and Clinical Research

ISSN Print: 2664-7613
ISSN Online: 2664-7621
Impact Factor: RJIF 8
IJPCR 2025; 7(1): 123-129
www.pharmacologyjournal.in
Received: 10-03-2025
Accepted: 16-04-2025

Dnyaneshwar P Jadhav
Professor, Sumantai Institute of Pharmacy, Bambrud kh. Pachora Dist. Jalgaon, Maharashtra, India

Angad S Lokhande
Department of Pharmacology, Dr. Babasaheb Ambedkar Technological Univercity Lonere, Raigad, Maharashtra, India

Jayesh S Thakare
Department of Pharmacology, Dr. Babasaheb Ambedkar Technological Univercity Lonere, Raigad, Maharashtra, India

Nirant S Deore
Department of Pharmacology, Dr. Babasaheb Ambedkar Technological Univercity Lonere, Raigad, Maharashtra, India

Sandip R Khade
Department of Pharmacology, Dr. Babasaheb Ambedkar Technological Univercity Lonere, Raigad, Maharashtra, India

Ujjwal A. Mahajan
Assistant Professor, Department of Pharmacology, Dr. Babasaheb Ambedkar Technological Univercity Lonere, Raigad, Maharashtra, India

Corresponding Author:
Dnyaneshwar P. Jadhav
Author Professor, Sumantai Institute of Pharmacy, Bambrud kh. Pachora Dist. Jalgaon, Maharashtra, India

The analytical method for the simultaneous estimation of naproxen and domperidone will be developed by rp-HPLC method by optimizing the chromatographic conditions

Dnyaneshwar P Jadhav, Angad S Lokhande, Jayesh S Thakare, Nirant S Deore, Sandip R Khade and Ujjwal A Mahajan

DOI: https://doi.org/10.33545/26647613.2025.v7.i1b.63

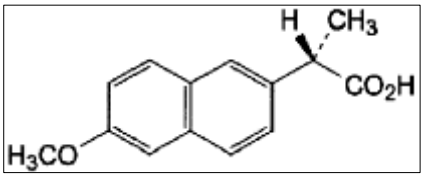
Abstract
Domperidone and naproxen in tablet dosage form can be analyzed simultaneously using a straightforward, fast, and selective reversed phase High Performance Liquid Chromatographic (RP-HPLC) method that has been developed and validated. The CTO-10ASVP column oven, SPD-20A UV detector, SIL-20A auto-sampler, and two LC-20 AT pumps made up the chromatographic system. A Shim-Pack Cix column (250 mm x 4.6 mm, 5 µm) was used as the stationary phase for the chromatographic separation of drugs. The mobile phase consisted of a 30:70 (v/v) ratio of methanol to phosphate buffer (pH adjusted to 3.00 with sodium hydroxide) at a flow rate of 1.0 ml/min, with UV detection at 280 nm. 3.17 was the retention time. 5.42 minutes for naproxen, and minutes for domperidone. Domperidone and naproxen peaks were found to be well separated by the technique, which was shown to be selective (resolution 10.72). The suggested approach is accurate with a 99.5% recovery for domperidone and a 99.39% recovery for naproxen, linear (r=0.999 for both drugs), and precise (%RSD < 1%). The commercial product's potency was determined using this procedure, and it was found to be within a certain range. Domperidone and naproxen in tablet dosage form can be analyzed using this method.

Keywords: Domperidone, Naproxen

Introduction
Pharmaceutical dosage forms can benefit greatly from the simultaneous determination of medicines using reversed-phase high performance liquid chromatography (RP-HPLC). For increased sensitivity and selectivity, this method is frequently employed. A straightforward reverse phase high performance liquid chromatographic technique (RP-HPLC) for the simultaneous measurement of naproxen and domperidone in tablet dose form is described in this work. 5-chloro-1- [1- [3-(2-oxo-2, 3-dihydro-IH-benzimidazol-1-yl) propyl] is the chemical name for domperidone. - piperidin-4-yl Naproxen (NAP) is (2S)-2-(6-Methoxynaphthalen-2-yl) propanoic acid, which is 1, 3-dihydro-2H benzimidazol-2. Domperidone is an antagonist of the D_2 receptor. In addition to preventing nausea and vomiting, it improves gastrointestinal motility and peristalsis, which prevent reflux esophagitis. A popular non-steroidal anti-inflammatory medication, naproxen is used in clinical settings to treat rheumatoid arthritis and other excruciating musculoskeletal conditions. It functions by blocking the COX-1 and COX-2 enzymes. Numerous analytical techniques have been put forth for the quantitative assessment of naproxen and domperidone both alone and in combination with other medications. Domperidone alone in pharmaceutical formulation has been estimated using HPLC (Varalakshmi *et al*., 2011) [12] and UV (Rajendra *et al*., 2009) [9]. Additionally, accessible are domperidone in conjunction with omeprazole (Laksmi *et al*., 2007) [8], pantoprazole (Sivakumar *et al*., 2008) [10], rabeprazole (Kalirajan *et al*.,), lansoprazole (Bhavna *et al*., 2009) [4], and paracetamol (Karthik *et al*., 2007) [7].
HPLC (Haque *et al*., 2010) [5] and UV (Tasnuva *et al*., 2007) [11] have also been used to assess naproxen in conjunction with other medications.

To the best of our knowledge, no straightforward and affordable analytical technique has yet been published for the simultaneous measurement of naproxen and domperidone. An economical, quick reversed-phase high performance liquid chromatographic method was thus developed and validated for the quality control of naproxen and domperidone in pharmaceutical preparations. This method's short analytical run time and reduced solvent consumption result in an environmentally friendly chromatographic process and enable the analysis of a large number of samples in a short amount of time. After validation, the procedure was determined to be exact, accurate, and repeatable.

Drug profile
Naproxen



$C_{14}H_{14}O_3$
Action and use
Cyelo-oxygenase inhibitory, analgsic; anti-infarnmatoy,

Preparations
Naproxen Oral Suspension
Naproxea Tables
Naproxen Gasro-resistant Tablets

Defintion
(25)-2-(6-Methoxynaphthalen-2-yl) propanoic acid.

Content
99. 0 per ceat to 101.0 per cent (dred substance)

Characters
Appearance
Whiie or almost white, crystaline powder.

Solubility
Practically insoluble in water, soluble in ethanol (96 percent) and in methanol.

Identification
First identification: A, D.
Second identification: A, B, C.
A. Specific optical rotation (2.2.7): + 59 to + 62 (dried substance).
Dissolve 0.50 g in ethanol (96 percent) R and dilute to 25.0 ml. with the same solvent,
B. Melting point (2.2.14):154 ℃. to 158 ℃.
C. Ultraviolet and visible absorption spectrophotometry (2.2.25)
Test solution Dissolve 40.0 mg in methanol R and dilute to 100.0 mL with the same solvent. Dilute 10.0 mL of the solution 100.0 ml with methanol R.
Spectral range 230-350 nm.
Absorption maxima At 262 nm, 271 nm, 316 om and 331 nm.
Specific absorbances at the absorption maxima:

- at 262 nm: 216 to 238;
- at 271 nm: 219 to 241;
- at 316 nm: 61 to 69;
- at 331 nm: 79 to 87.

D. Infrared absorption spectrophotometry (2.2.24)
comparison naproxen GRS

Tests
Appearance of solution
The solution is clear (2.2. 1) and not more intensely coloured than refrance solution BY $_7$ (2.2.2, Method II).
Dissolve 1.25 g in methanol R and dilute to 25 mL with the same solvent.

Enantiomeric purity
Liquid chromatography (2.2.29), protect the soluions from light.
The solution Dissolve 25.0 mg, of the substance to be
Examined in tetrahydrofuran R and dilute to 50.0 mI. with the same solvent, Dilute 2.0 ml.of the soluion to 20.0 ml, with the mobile phase.
Refrance solution (a) dilute 2.5 ml of the test solution to 100.0 ml with the mobile phase.
Refrance solution (b) Dissolve 5 mg of the racemice naproxine CRS in 10.0ml of tetra hydro furan R and dilutr to 100.0 ml with the mobile phase.

Column

- Size: l = 0.25 m, 0 = 4.6 mm;
- Stationary phase, silica gel π-acceptaor/ π -donar far chiral separations R (5 um) (S, S);
- Temperature: 25 c.

Mobile phase glacial acetic acid R, acelonitrite R, 2-propanol R, hexane R (0.5:5:10.84, 5 VIVIVIV).
Flow rate 2ml\min
Detection spectrophotometer at 263 nm.
Injection 20uL
Run time 1.5 times the retention time of naproxen (retention time = about 5 min).

Systemic suitability Reference solution (b)
Resolution: minimum 3 between the peaks due to impurity G and naproxen.

Limit
Impurity G: not more than he area of the principle peak in the chromato gram obtained with reference solution (a) (2.5 percent).

Related substances
Liquid chromatography (2.2.39). Protect the solutions from light
Test solution dissolve 12 mg of the substance to the examined in the mobile phase and dilute to 20 ml with the mobile phase.
Reference solution (a) dilute 1.0 ml of the test solution to 50.0 ml with the mobile phase
Reference solution (b) desolve 6mg of bromomethoxynaphthalene R (impurity N). 6.0 mg of naproxen impurity L CRS, 6 mg of 6-methoxy-2-naphthoiv acid R (impurity O) and 6 mg of (IRS)-1-(6-methoxynapthalen-2-yl) ethanol R (impurity K) in acetonitrite R and dilute to 10.0ml of the test solution and

dilute to 50.0 ml with the mobile phase. Dilute 1.0 ml of this solution to 20.0 ml with the mobile phase.

Column

1. **Size:** l=0.10 m, = 4.0 mm;
2. **Stationary phase:** End-capped octadecylsityl silica gel for chromatography R (3 um);
3. **Temperature:** 50 °C.

Mobile phase Mix 42 volumes of acetonitrite R and 58 volumes of a 2.36 g/l solution of potassium dihydrogen phosphate R Previously adjusted to pH 2.0 with phosphoric acid R.
Flow rate 1.5 ml/ min.
Detection Spectrophotometer at 230 nm.
Injection 20 ul.
Run time 1.5 times the retention time of impurity N.
Identification of impurities Use the chromatogram obtained with reference solution (b) to identify the peaks due to impurities K,L,N and O.
Relative retention With reference to naproxen (retention time =about 2.5 min): impurity O= about 0.8; impurity K= about 0.9; impurity L= about 1.4; impurity N= about 5.3.
System suitability Reference solution (b):

1. resolution: minimum 2.2 between the peaks due to impurity K and naproxen.

Limits

1. correction factor: for the calculation of content, multiply the peak area of impurity O by 2.0;
2. impurity O: not more than 1.5 times the area of the principal peak in the chromatogram obtained with reference solution (a) (0.15 percent);
3. impurity L: not more than 1.5 times the area of the corresponding peak in the chromatogram obtained with reference solution (b) (0.15 percent);
4. unspecified impurities: for each impurity, not more than the area of the principal peak in the chromatogram obtained with reference solution (a) (0.10 percent (;
5. total: not more than 3 times the area of the principal peak in the chromatogram obtained with reference solution (a) (0.3 percent);
6. dirrgard limit: 0.5 times the area of the principal peak in the chromatogram obtained with reference solution (a) (0.05 percent).

Loss on drying (2, 2, 32)
Maximum 0.5 percent determined on 1.000 g drying in an oven at 105c for 3h
Sulfinted ash (2, 4, 14)
Maximum 0.1 percent, determined on 1.0g.

Assy

Dissolve 0.200 g in mixture of 25 ml of water R and 75 ml of methanol R, Titrate with 0.1 M sodium hydroxide, using 1 ml of phenolphthalein solution R as indicater.
1ml of 0.1 M sodium hydroxide is equivalent to 23.03 mg of C14h14o3

Storage: Protected from light.

Impurities: Specified impurities G,L,O.
Other detectable impurities (The following substance would, if present at a sufficient level, be detected by one or other of the tests in the Monograph. They are limited by the general acceptance criterian for otherlunspecified impurities andler by the general therefor not neccesary substance for pharmaceutical use (2034) it is demostration of compliance, see all also 5, 10 control of impurities in substance for pharmaceutical)

Drug Use

Naproxen Oral Suspension

Naproxen Oral Suspension is an aqueous suspension of Naproxen in a suitable flavoured vehicle.
Naproxen Oral Suspension contains not less than 90.0 per cent and not more than 110.0 per cent of the stated amount of naproxen, $C_{14}H_{14}O_3$.
Usual strength. 25 mg per ml.

Identification

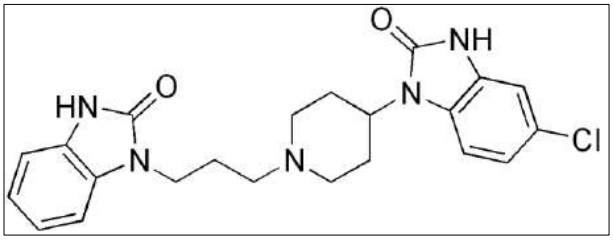
Evaporate 50 ml of solution A obtained in the Assay, to dryness using a rotary evaporator. The residue complies with the following tests.
A. Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with naproxen RS or with the reference spectrum of naproxen.
B. When examined in the range 230 nm to 350 nm (2.4.7), a 0.004 per cent w/v solution in methanol exhibits maxima at 262 nm, 271 nm, 316 nm and 331 nm.

Tests

pH (2.4.24). 2.1 to 4.0.
Related substances. Determine by thin-layer chromatography (2.4.17), coating the plate with silica gel GF254.
Mobile phase. A mixture of 3 volumes of glacial acetic acid, 9 volumes of tetrahydrofuran and 90 volumes of toluene.

Drug profile

Domperidone



$C_{22}H_{24}ClN_5O_2$

Domperidone is 5-chloro-1-[3-(2-oxo-2,3-dihydro-1H-benzimidazol-1-ylpropyl)piperidin-4-yl]-1,3-dihydro-2H-benzimidazol-2-one.
Domperidone contains not than 99.0 percent and more than 101.0percent of $C_{22}H_{24}ClN_5O_2$, calculated on the dried basis.
Category, Antiemetic,
Description. Awhite or almost white powder.

Identification

Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with domperidone RS or with the reference spectrum of domperidone.

Tests: Appearance of solution. A 1.0 per cent w/v solution in dimethylformamide is clear (2.4.1) and not more intensely coloured than reference solution YS6 (2.4.1).

Related substances**.** Determine by liquid chromatography (2.4.14).
NOTE-Prepare the solutions immediately before use.
Test solution. Dissolve 0.1 g of the substance under examination in dimethylformamide and dilute to 10.0 ml with the same solvent.
Reference solution (a). A solution containing 0.01 per cent w/v of domperidone RS and 0.015 per cent w/v of droperidol RS in dimethylformamide.
Reference solution (b). Dilute 1.0 ml of the test solution to 100.0 ml with dimethylformamide. Dilute 5.0 ml of the solution 20.0 ml with dimethylformamide.

Chromatographic system

1. a stainless steel column 10 cm x 4.6 mm, packed with base-deactivated octadecylsilane bonded to porous silica (3 µm), mobile phase: A. 0.5 per cent w/v solution of ammonium acetate,
2. B. methanol,
3. a linear gradient programme using the conditions given below,
4. Flow rate. 1.5 ml per minute,
5. spectrophotometer set at 280 nm,
6. Injection volume. 10 µl.

Time (min)	Mobile phase A (per cent v/v)	Mobile phase B (per cent v/v)
0-10	70→0	30→100
10-12	0	100

Adjust the sensitivity of the system so that the height of the principal peak in the chromatogram obtained with reference solution (b) is at least 50 per cent of the full scale of the recorder.
Inject reference solution (a). The test is not valid unless the resolution between the peaks due to domperidone and droperidol is not less than 2.0.
Inject reference solution (b) and the test solution. In the chromatogram obtained with test solution, the area of any secondary peak is not more than the prea of the principal peak in the chromatogram obtained with reference solution (b) (0.25 per cent); the sum of the areas of all the secondary peaks is not more than twice the area of the principal peak in the chromatogram obtained with reference solution (b) (0.5 per cent). Ignore any peak with an area less than 0.2 times that of the principal peak in the chromatogram obtained with reference solution (b) (0.05 per cent).
Heavy metals (2.3.13). 1.0 g complies with the limit test for heavy metals, Method B (20 ppm).
Sulphated ash (2.3.18). Not more than 0.1 per cent.
Loss on drying (2.4.19). Not more than 0.5 per cent, determined on 1.0 g by drying in an oven at 105°.

Assay

Dissolve 0.3 g in 50 ml of a mixture of 1 volume of anhydrous acetic acid and 7 volumes of methyl ethyl ketone. Titrate with 0.1 M perchloric acid until the colour changes from orange-yellow to green using 0.2 ml of naphtholbenzein solution as indicator.
1 ml of 0.1 M perchloric acid is equivalent to 0.04259 g of C22H24CIN5O2

Storage

Store protected from light

Materials and Methods

Appratus

The CMB-20 Alite system controller, two LC-20AT pumps, SIL-20A auto-sampler, and CTO-10ASVP column oven were all part of a Shimadzu (Japan) HPLC system. A SPD-20A UV-VIS detector (Shimadzu, Japan) was used to detect ultraviolet light. LC solution (Version 1.2, Shimadzu, Japan) software running Windows XP on a Pentium PC was used to collect and process the drug analysis data.

Chemicals and reagents

A generous donation of naproxen and domperidone was provided by Incepta Pharmaceuticals Limited in Dhaka, Bangladesh. The HPLC-grade methanol was obtained from E. Merck in Darmstadt, Germany. M/S Qualigens Fine Chemical provided analytical reagent grade potassium dihydrogen phosphate and potassium dihydrogen ortho-phosphate. Ranbaxy Laboratories Ltd. supplied the analytical reagent-grade sodium hydroxide. Water underwent double distillation and deionization.

Formulation for commercial use

At the moment, our local market did not carry domperidone and naproxen combination items. Naspro (250 mg naproxen) and Domilux (10 mg domperidone) tablets were bought from a nearby pharmacy in Dhaka. The samples were appropriately stored after being verified for manufacture, expiration dates, batch numbers, and manufacturing license numbers.

Making a typical solution

To create stock solutions of domperidone (200 mcg/ml) and naproxen (1000 mcg/ml), 20 mg of domperidone and 25 mg of naproxen were separately dissolved in 100 ml of mobile phase. In several 100 ml volumetric flasks, multiple aliquots of normal domperidone and naproxen solutions were taken, and they were diluted with mobile phase to obtain five distinct concentrations (target concentrations of 80%, 90%, 100%, 110%, and 120%). The same procedure was used to make a solution with a combination of domperidone and naproxen in five different concentrations (80%, 90%, 100%, 110%, and 120% of the desired concentration).

Getting the sample solution ready

Tablet powder was dissolved in mobile phase to create a sample solution that contained both medications. Twenty Naspro and Domilux tablets were weighed independently. We calculated their average weights. In a 100 ml volumetric flask, powdered tablets containing 125 mg of naproxen and 5 mg of domperidone were weighed, dissolved in mobile phase, agitated for approximately ten minutes, and then filtered through filter paper. To achieve a working sample concentration that was 100% of the target concentration, the filtered solution was further diluted in the mobile phase.

Conditions for chromatography

The mobile phase, a 30:70 v/v phosphate buffer and methanol combination, was pumped across the column (Cs; 5µ, 4.6 X 250 mm, Shim Pack, Japan) at 30°C at a flow rate of 1.0 ml/min. Before being used under vacuum, the mobile phase was degassed by filtering it over a 0.2µ nylon membrane. A UV detector with a sensitivity of 0.0001 was used to test concentrations at 280 nm.

Creation and verification of the HPLC technique: The goal of the current study was to develop a novel, economical, practical, and cost-effective method for HPLC analysis of naproxen and domperidone in tablet dosage form. The experiment was conducted in compliance with the Global Quality Guidelines-2002, ICH-1996, and USP-30 approved standards. System appropriateness, selectivity, linearity, accuracy, precision, and robustness were among the parameters for which the approach was validated.

System appropriateness

Six replicate analyses of a solution containing 100% target concentrations of naproxen and domperidone were used to conduct a system suitability evaluation of the procedure. The method was assessed by examining a number of chromatographic parameters, including retention duration, peak area tailing factor, theoretical plates (Tangent) of the column, and resolution between the peaks.

Selectivity

The effect of excipients on the assay outcome is established by the selectivity test. Initially, a reference sample of naproxen and domperidone was injected to assess the method's selectivity. The equipment was then used to run the commercial product, blank, and excipient solution sequentially.

The concept of linearity

Calibration curves were constructed in order to assess the method's linearity. For this, standard domperidone and naproxen solutions with varying concentrations (80%, 90%, 100%, 110%, and 120%) were employed. Six replicates were used for each measurement, and the peak regions of The calibration curves and correlation coefficients were obtained by plotting the chromatograms against the concentrations.

Precision

The accuracy of the approach was assessed using the spike and recovery method. Both medications were added to placebo formulations at varying concentrations. The percentage of the material retrieved by the assay was used to compute the accuracy.

Accuracy

Four separate analyses of the three standard solutions—90%, 100%, and 110% of the target concentration—were conducted on the same day in order to ascertain intra-day precision, or repeatability. However, by analyzing standard solutions with 90%, 100%, and 110% of the target concentration on three separate days in the same lab, the method's inter-day precision (intermediate) was evaluated. To evaluate the method's precision, the relative standard deviation (% RSD) was computed.

Strongness

The method's robustness was assessed by analyzing the samples in a range of scenarios. The buffer pH (2.8 and 3.0), the composition of the mobile phase, the flow rate (0.9 and 1.1/min), and the temperature (30 °C and 28 °C) were all slightly altered. The method's robustness was determined by calculating the recovery percentage.

Results and Discussion

Table 1 provides an overview of the system suitability study's findings. A good system for analysis is indicated by the consistent retention time, theoretical plate count, tailing factor, and resolution for both pharmaceuticals after six consecutive injections of the standard solution.

Table 1: Result of system suitability tests of domperidone and naproxen.

	Domperidone Naproxen					
Parameter	**Average**	**SD**	**%RSD**	**Average**	**SD**	**%RSD**
Retention time	3.168	0.001	0.041	5.424	0.004	0.076
Area	125978.00	1249.903	0.992	1622441.500	376.285	0.023
Therotical plates	4561.153	18.792	0.412	8739.667	5.750	0.066
Tailing factor	1.357	0.004	0.287	1.355	0.015	1.090
Resolution				10.719	0.018	0.168

The retention times for the commercial products of naproxen and domperidone and the standard sample are identical, as illustrated by the chromatograms in this demonstrates that excipients don't affect the analytical process. However, the drug peak did not overlap with the blank peak. Thus, the approach is rather selective. Domperidone and naproxen showed a linear connection between peak areas (Average peak areas of six replicates) and concentrations between 80% and 120% of nominal concentration. For both medications, the correlation coefficient was 0.999, demonstrating the linearity of the approach.

Table 2: Accurancy (% recovery) results of domperidone and naproxen. Domperidone

Sample no.	Spiked amount(mg)	Recovered amount (mg)	% recovered	% Average recovery
1	10.00	9.79	97.90	
2	15.00	14.85	99.00	99.50
3	20.00	20.32	101.60	

Naproxen

Sample no	Spiked amount (mg)	Recovered amount (mg)	% recovered	% Average recovery
1	15.00	14.31	95.40	
2	22.50	22.87	101.64	99.39
3	30.00	30.34	101.13	

Table 2 displays the accuracy study's findings. The recovery test yielded the measured result. The amounts of both drugs that were spiked and recovered were compared.
Domperidone and naproxen had recovery rates of 99.50% and 99.39%, respectively. The procedure is very accurate, according to all the results. Table 3 summarized the intra-day and inter-day variability results. On the same day, intra-day variability was conducted from 9:00 am to 6:00 pm. For several runs, the percentage RSD of peak areas was computed. Since the percentage RSD of peak area was less than 1% in every test, the approach is quite accurate.

Table 3: Intraday and inter day precision result of domperidone and naproxen**.**

Drug	% RDS (Intraday)	% RDS (inter day)
Domperidone	0.929	0.824
Naproxen	0.054	0.374

Small adjustments to the buffer pH, mobile phase composition, flow rate, and temperature did not significantly alter the analytical results, which are shown in Table 4, according to the robustness results of the current procedure. Since the changes are negligible, we can conclude that the approach is reliable.

Table 4: Results for robustness test of domperidone and naproxen.

Parameter	Changes	% Recovery of domperidone	% Recovery of naproxen
Flow rate (ml/min)	0.9	98.89	98.71
	1.1	99.19	99.14
Column temperature(°C)	28	99.27	99.64
	30	99.13	99.59
Menthol variation	70%	99.19	99.70
	72%	98.80	99.68
pH	3.00	99.12	99.74
	2.80	98.87	99.62

Commercially available tablets were tested for potency using the suggested approach. The domperidone (10 mg) and naproxen (250 mg) tablets' potencies were assessed. A solution comprising both medications was made by combining tablet powder. Table 5 provides an overview of the outcomes of the six replicate determinations that were performed.

Table 5: Potency of domperidone and naproxen in tablets.

Drug	Label claim (mg)	Observed amount (mg) (n=6)	Potency (%)
Domperidone	10.00	9.89	98.90
Naproxen	250.00	248.45	99.38

Conclusion

The accuracy, precision, and linearity of the suggested high-performance liquid chromatographic technique have been assessed. With a correlation coefficient of 0.999, the measured signals demonstrated precision, accuracy, and linearity across the concentration range evaluated (80-120% of the target concentration). There was no matrix source interference with this approach. Furthermore, the chromatographic process is ecologically benign and enables the analysis of a large number of samples in a short amount of time due to the lower solvent consumption and the short analytical run time of 10 minutes. As a result, routine sample analysis can be performed using this HPLC approach.

Reference

1. British Pharmacopoeia Commission. Naproxen. In: British Pharmacopoeia 2022. Vol II. London: TSO (The Stationery Office); 2022. p. 372-375.
2. Indian Pharmacopoeia Commission. Naproxen oral suspension. In: Indian Pharmacopoeia 2010. Vol III. Ghaziabad: Indian Pharmacopoeia Commission; 2010. p. 1754-1755.
3. Indian Pharmacopoeia Commission. Domperidone. In: Indian Pharmacopoeia 2010. Vol II. Ghaziabad: Indian Pharmacopoeia Commission; 2010. p. 1244-1245.
4. Bhavna P, Zarna D, Ronak D, Chetan R, Vidya SG. Simultaneous estimation of Lansoprazole and Domperidone in combined dosage form by RP-HPLC. Asian J Res Chem. 2009;2(2):112-114.
5. Haque T, Takulder MMU, Laila S, Fatema K. Development and validation of RP-HPLC method for simultaneous estimation of Naproxen and Ranitidine Hydrochloride. Pak J Pharm Sci. 2010;23(4):379-383.
6. Kalirajan R, Anandarajagopal K, Seena MM, Gowramma B, Jubie S, Suresh B. Simultaneous determination of Rabeprazole and Domperidone in dosage forms by RP-HPLC. Rasayan J Chem. 2008;1(2):232-235.
7. Karthik A, Subramanian G, Ranjith KA, Udupa N. Simultaneous estimation of Paracetamol and Domperidone in tablets by reverse phase HPLC method. Indian J Pharm Sci. 2007;69(1):142-144.
8. Laksmi S, Anil KV. Simultaneous HPLC estimation of Omeprazole and Domperidone from tablets. Indian J Pharm Sci. 2007;69(5):674-676.
9. Rajendra P, Rajasekhar KK, Shankarananth V, Yaminikrishna HV, Saikumar S, Venkata RR. Spectrophotometric method for the estimation of domperidone in bulk and pharmaceutical formulations. J Pharm Res. 2009;2(10):1593-1594.

10. Sivakumar T, Manavalan R, Valliappan K. Stability-indicating HPLC method for simultaneous determination of Pantoprazole and Domperidone from their combination drug product. Chromatographia. 2008;67(1-2):131-135.
11. Tasnuva H, Mesbah UT, Susmita L, Kanij F, Kalam LK. Simultaneous estimation of Naproxen and Ranitidine HCl by using UV spectrophotometer. S J Pharm Sci. 2007;1(1-2):18-24.
12. Varalakshmi M, Vijaya RJ, KrishnaChaitanya K, Samson ID. RP-HPLC method development and validation of Domperidone maleate. Int. J Pharm Res Dev. 2011;3(4):61-64.