WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 10, Issue 14, 1109-1124. Research Article ISSN 2277– 7105

FORMULATION AND DEVELOPMENT OF MATRIX TABLET OF THIOCOLCHICOSIDE

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Article Received on
09 October 2021,

Revised on 29 October 2021,
Accepted on 19 Nov. 2021

DOI: 10.20959/wjpr202114-22352

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ABSTRACT

Thiocolchicoside has the muscle relaxing effect with anti-inflammatory and analgesic effects. Since the side effects and lower bioavailability of Thiocolchicoside (25%) with half life of 3-4 hr, an effort has been made for the formulation development of matrix tablet for its oral application. Observation of organoleptic properties, solubility, melting point and partition coefficient was done. λ_{max} was found at 259.5 nm by UV-Visible spectrophotometer, linearity was achieved in the concentration range of 5-25µg/ml in phosphate buffer (pH 6.8) at 259 nm. Drug-excipient compatibility was studied by Physical observation and performed on FT-IR spectra, found no incompatibility. Matrix tablets of drug were prepared by non aqueous wet granulation method. Initially the concentration of polymer was optimized to get better matrixing property and sustain release of the drug, prepared formulation H-1 to H-5 were evaluated and observed. Micromeritic properties of prepared granules were obtained all formulation batches possessed then of hardness, thickness and diameter of the tablets and weight variation, content variation friability and Swelling behavior in terms of swelling Index were optimum. The drug release study of the formulation H-1 to H-5, were showing good release but the formulation H-3 good drug release profile of 93.15±0.85. To find out the mechanism of drug released from the optimized formulation H-3 thiocolchicoside matrix tablets, the data was fitted to zero order, first order Higuchi and Peppas models of kinetics.

KEYWORDS: Thiocolchicoside, Matrix Tablets, Organoleptic, HPMC, Micromeritic.

INTRODUCTION

Oral route is one of the most popular routes of drug delivery due to its ease of administration, patient compliance, least sterility constraints and supple design of dosage form.[1] Matrix

tablets are the kind of tablet which is aimed such that it releases it substances regarding first order kinetics or zero order kinetics due to distinctive procedure and combination of hydrophobic and hydrophilic polymers as an excipient to form a matrix.[2,3] Decrease the frequency of dosing or to increase efficiency of the drug by localization at the site of action, decreasing the dose required, or given that constant drug delivery.[4] Matrix tablet would be a single dose for the duration of the treatment whether it is for days or weeks, as with infection, or for the life time of patient, as in hypertension or diabetes. Matrix tablet should passage the active entity straight to the site of the action, reducing or eliminating side effects.[5] Matrix tablet may require delivery to particular receptor or to localization to cells or to specific areas of the body.[6]

Thiocolchicoside is a muscle relaxant with anti-inflammatory and analgesic effects. It acts as a competitive $GABA_A$ receptor antagonist and also glycine receptor antagonist with similar potency and nicotinic acetylcholine receptors to a much lesser extent.[7] It has powerful convulsant activity and should not be used in seizure prone individuals.[8] Thiocolchicoside is having a half life of 5-6 hrs.[9] The bioavailability of Thiocolchicoside tablets is approximately 25% absorbed with first pass metabolism and the serum concentration touches its peak within 1-2 hrs after oral administration.[10] Hence, the attempt is to formulate sustained drug delivery system in the form of matrix tablets which will overcome inherent conventional drawbacks like poor patient compliance, shorter half life and poor bioavailability.

In present work we have tried to explore the matrixing ability of HPMC as polymers for the prolonged delivery of Thiocolchicoside, which have very little half life and number of adverse effects are associated with it. So it may be a good applicant for such delivery.

MATERIAL AND METHODS

Thiocolchicoside was obtained from Sarv Biolab Private Limited, Kala Amb, Sirmour, H. P. as gift. HPMC K4M and Lactose monohydrate from Himedia Pvt. Ltd. India and Magnesium stearate, Talc and Ethyl alcohol was obtained from Marc Pvt. Ldt. U V Spectrophotometer of Shimadzu, Japan model 1700-E, 6 basket dissolution apparatus of Electrolab, India.

METHODS

Preformulation study

Organoleptic evaluation of thiocolchicoside drug: Organoleptic evaluation wasevaluation in which we observed the physical properties of the drug like color, odor, test, physical state etc.

Solubility determination of thiocolchicoside: Solubility of Thiocolchicoside was tested in various solvents. A definite amount (10mg) of drug was dissolved in exact amount (10ml) of solvents at room temperature and observed by the UV- visible spectrometer.

Melting point of Thiocolchicoside: Melting point of Thiocolchicoside was determined by Theils Apparatus. It is performed by filling of drug in capillary tube and tied this capillary tube at the bottom of thermometer with the help of threaSd. Now filled Theils tube with light liquid paraffin and holded this tube with the help of burette stand than place burner at the bottom of tube, dip the thermometer in this liquid paraffin and then note the point which drug started melting in the capillary.

Partition Coefficient of Thiocolchicoside: The partition coefficient of drug (Thiocolchicoside) was determined in solvent system n-octanol/distilled water. Accurately weighed quantity of drug (20mg) was taken in separating funnel containing 20ml n-octanol, 20ml distilled water. Then the funnel was vigorously mixed and kept to equilibrate for 6 hrs. The contents of both phases were separated. After appropriate dilution, the aqueous phase was analysed for Thiocolchicoside against reagent blank solution using UV spectrophotometer. The drug concentration in n-octanol phase determined by subtracting the amount in aqueous phase from the total quantity of drug added to the vial. The partition coefficient value "p" was calculated by the following equation:-

$$\mathbf{P_{O/W} = C_{Oil} / C_{water}}$$

Where,

$P_{O/W:}$ Partition coefficient is oil in to water

$C_{oil:}$ concentration of drug in oil

$C_{water:}$ concentration of drug in water

UV Spectrophotometric study of thiocolchicoside

(a) Preparation of stock solution

10mg of exactly weighed Thiocolchicoside was dissolved in adequate quantity of 6.8pH buffer in 10ml volumetric flask and shaken (1000 µg/ml). The volume was made up to 10ml.

(b) UV-Scanning of thiocolchicoside in 6.8pH buffer to Determination of λ_{max}

1ml solution was taken from the stock solution in 10ml volumetric flask and make up to 10ml with 6.8pH buffer resultant solution was100 µg/ml. 10µg/ml, Aliquot was scanned between 200-400 nm on a UV-Visible spectrophotometer against 6.8pH buffer as blank.

(c) Preparation of standard curve 6.8pH buffer

Aliquots of the above solution were taken and dilute to get drug concentration in the range of 5-25 µg/ml. The resulting dilutions (5-25 µg/ml) were scanned and Absorbance was measured by using UV/Visible spectrophotometer at λ_{max} 259 nm against 6.8 pH buffer as blank. Linear regressed calibration curve was created.

Compatibility studies of Thiocolchicoside with excipients: Compatibility study of Thiocolchicoside with excipient was performed under different storage condition for one month. Drug and excipients were physically mixed and the physical mixture was divided in four parts, filled in glass vial and kept under different temperature and relative humidity condition. The control sample and a vial containing only drug was sealed and kept as such in low temperature condition (2-8^{0}C). After one month the samples were withdrawn and physically observed for change in the physical characteristic of the drug-excipient mixture.

IR Spectroscopic study for Drug Excipients Interaction: The IR spectra of drug and polymer (HPMC) in ratio (1:1) were recorded to determine the suitability of selected polymer for Thiocolchicoside using Infrared spectrophotometer. The IR analysis was performed with spectra measures over the frequency range 750-4000 cm^{-1}. The study was performed on FT-IR spectrophotometer, observed the spectra for, major deviation in comparison to the spectra of standard drug.

Method of formulation of Granules

Granules were prepared by wet granulation method. Guar gum and thiocolchicoside were mixed homogeneously by pestle mortar. Lactose was used as filler and channeling agent. PVP solution in Ethanol was used as granulating agent. Granules were prepared by 30 mesh

screen. Prepared granules were dry on hot air oven and stored in dry and cool place or in desiccators.

Characterization of prepared granules

5.2.3.1 Bulk density (D_b): It is the ratio of the total mass of the granules to the bulk of volume of the granules. From this, the bulk density was calculated according to the formula mention below. It is expressed in g/cc and is given by-

$$D_b = m/V_0$$

Where,

m – mass of the granules

V_0 – bulk volume of the granules

5.2.3.2 Tapped density (D_t): It is the ratio of total mass of granules to the tapped volume of the granules. The volume was measured by tapping the granules for 50 times. If it is more than 2% tapping is continue for 125 times and tapped volume was note.

$$D_t = m/V_I$$

Where,

m – Mass of the granules

V_I – tapped volume of the granules

5.2.3.3 Angle of repose (θ): This is the maximum angle possible between the surface of a pile of the granules or granules and the horizontal plane.

$$\text{Tan } \theta = h/r$$

$$\theta = \tan^{-1} (h/r)$$

Where,

θ = Angle of repose

h = Height of the heap

r = Radius of the heap

Measurement of granules Compressibility

(a) Compressibility Index

The flow ability of the granules can be evaluated by comprising the Bulk Density (BD) and Tapped Density (TD) of granules and the rate at which it packed down. Compressibility Index of the granules was determined by the carr's compressibility index:

$$CI\ (\%) = TD\text{-}BD/TD \times 100$$

(b) Hausner's Ratio

It is the measurement of frictional resistance of the drug. The ideal range should be 1.2-1.5, it was determined by the ratio of tapped density and bulk density.

HR = Tapped Density/ Bulk Density

Formulation of Matrix Tablets

In Granules, talc (5% w/w) and magnesium stearate (5% w/w) were added as a glidant and lubricant respectively. Tablets were compressed using 9 mm die/punch set in a single punch tablet compression machine.

Evaluation of Prepared Matrix Tablets

The evaluation of Matrix tablet dosage form with respect to various characteristics is vital to precisely control the dosage form behavior and to ensure batch-to-batch uniformity. The tablets were evaluated for thickness, weight variation, hardness, friability, matrixing property and *in vitro* drug release.

Thickness: The thickness of the tablets was determined using a thickness gauge. Five tablets from each batch were used, and average values were calculated.

Weight variation Test: To study weight variation, 20 tablets were weighted individually and the arithmetic mean weight calculated. Not more than two tablets differ from the average weight by more than 5%.

Hardness and friability: For each formulation, the hardness and friability tests of six tablets were performed using the Pfizer hardness tester and Roche friabilator, respectively.

Swelling behavior of the Tablet: The extent of swelling was measured in terms of % weight gain by the tablet. The swelling behavior of all formulation was studied in a petridish containing pH 6.8 phosphate buffers. At the end of 0.5h and 1 h, the tablet was withdrawn, soaked with tissue paper, and weighed. Then for every 1 h, weights of the tablet were noted, and the method was continued till the end of 8 h. Percentage weight gain by the tablet was calculated by formula;

$$S.I. = \{(Mt-Mo) / Mo\} X 100$$

Where,

S.I = swelling index,

Mt = weight of tablet at time t (h) and

Mo = weight of tablet at zero time

***In-vitro* Drug release study:** *in-vitro* release studies were carried out in the dissolution test apparatus USP Type II. The tests were done out in 900 ml of 6.8 pH Phosphate buffer for 12 hrs at 75 rpm at 37±0.5^{o}C. 5 ml of the aliquot were withdrawn at different predetermined time intervals (1, 2, 4, 6, 8, and 12) and filtered. Sample was analyzed at 259 nm using UV/Visible spectrophotometer, 6.8 pH Phosphate buffer was used as blank. 5 ml of 6.8 pH Phosphate buffer was replaced in the vessel after each withdrawal to maintain the sink condition. The percentage drug release was calculated using the calibration curve and was plotted against function of time to study the pattern of drug release from tablets.

Optimization of Formulation

The duty of formulating a dosage form to accomplish a desirable controlled release with the selection of potential excipients that allow the formulation of matrices having controlled delivery characteristics, and it should dissolve slowly enough to work as a reservoir for the delivery. Initial dummy batches were prepared using guar gum simulating the use of okra gum.

Optimization of 'Drug: Polymer' Ratio

In preliminary trial batches, dummy batches were prepare by using guar gum in same ration as expected to take in final batches with okra gum. Ratio of drug and guar gum were optimized to get better matrixing property and prolonged release for the desired time. Three formulations comprising changed ratio of guar gum is mentioned in the table.

Statistical Treatment of Data

Numerous theories/kinetics models describe drug dissolution from immediate and modified release dosage form. The release of drug from a polymeric matrix is complicated. It often involves drug diffusion, interface movement and various interactions. In order to determine the mechanism of drug release from sustained release floating matrix tablets, the data were treated using following mathematical models-

The released data were plotted according to following equations,

1. Zero order : $M= M_0 – K_0t$
2. First order : $\text{Log } C= \text{Log } C_0 – K_t/2.303$
3. Higuchi square root law : $Q= kt^{1/2}$

4. Korsmeyer's model : $M_t/M_\infty = kt^n$

Where, M, C and Q is the amount of drug released at time t, M_0 and C_0 is total amount of drug and K_0, K_t and k are corresponding rate constant.

Stability of optimized multiple emulsion formulation

Optimized multiple emulsion formulation was stored in cool and dry place for 30 day. After 30 days stored formulation was observed visually.

RESULT AND DISCUSSION

Preformulation Study: Thiocolchicoside was a solid yellow, odorless powder freely soluble in water and buffer solution with melting point 195-197^{0}C and partition coefficient of 0.34 ± 0.32. Wavelength of Maximum Absorbance (λ_{max}) 259.5 was obtained by UV spectrophotometer and calibration in 6.8 pH buffer was prepared and linearity equation was obtained y=0.032x + 0.004 with correlation coefficient r^2 = 0.997.

Table no. 1: Absorbance of different aliquots of Thiocolchicoside at 259.5 nm.

S. no.	Concentration (µg/ml)	Absorbance
1	0	0
2	5	0.167
3	10	0.338
4	15	0.484
5	20	0.653
6	25	0.814

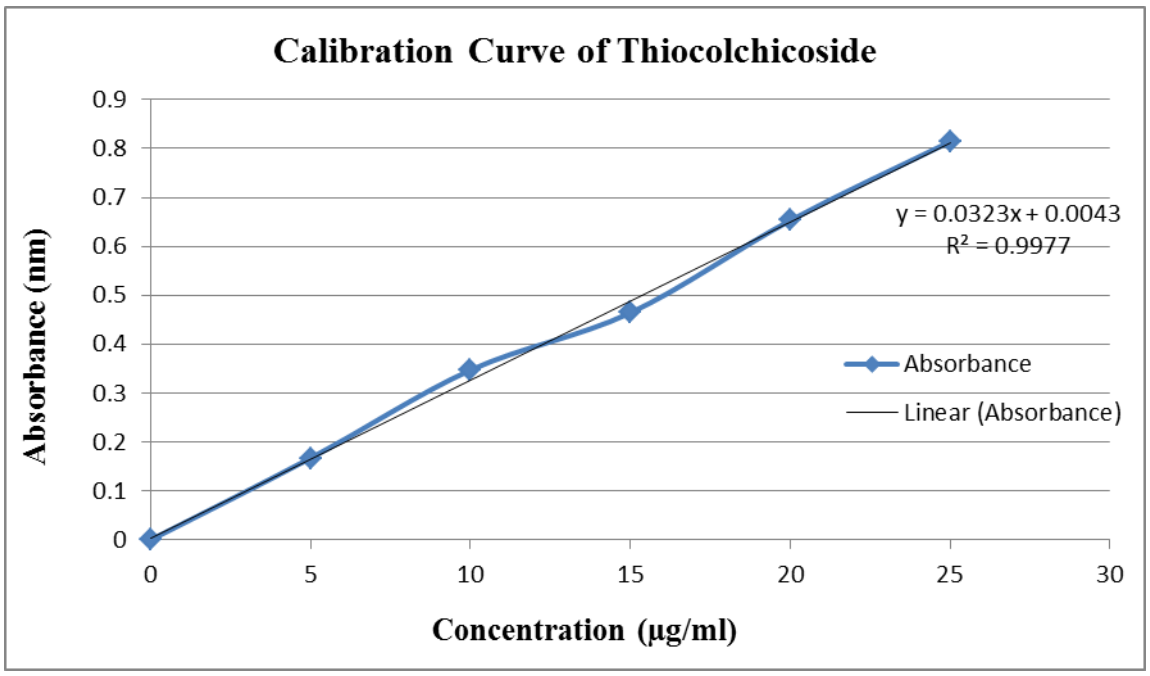

Figure no. 1: Graph showing calibration curve of Thiocolchicoside (pH 6.8 buffer).

Compatibility studies of Thiocolchicoside with excipients

Table no. 2: Physical drug-polymer compatibility studies.

S. No.	Drug-Excipient	Initial	30 days Condition			Comments
			CS	RT	Oven	
1.	Drug	Cream, Color	NC	NC	NC	Compatible
2.	Drug + all Polymer	Cream, Color	NC	NC	NC	Compatible

Inference: In one-month study no change was observed in the physical characterstics of the drug in presence of the excipients. This shows that there is no incompatibility between thiocolchicoside and excipients.

FT-IR Spectroscopic study for Drug-Excipients Interaction

The study was performed on FT-IR, the spectra shows no major deviation, in comparison to the spectra of standard drug.

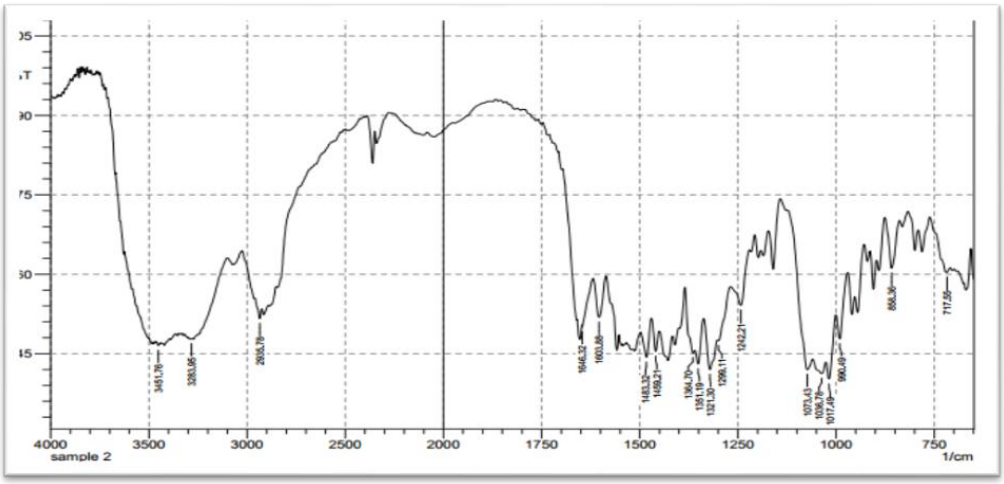

Figure no. 2: IR graph of drug (Thiocolchicoside).

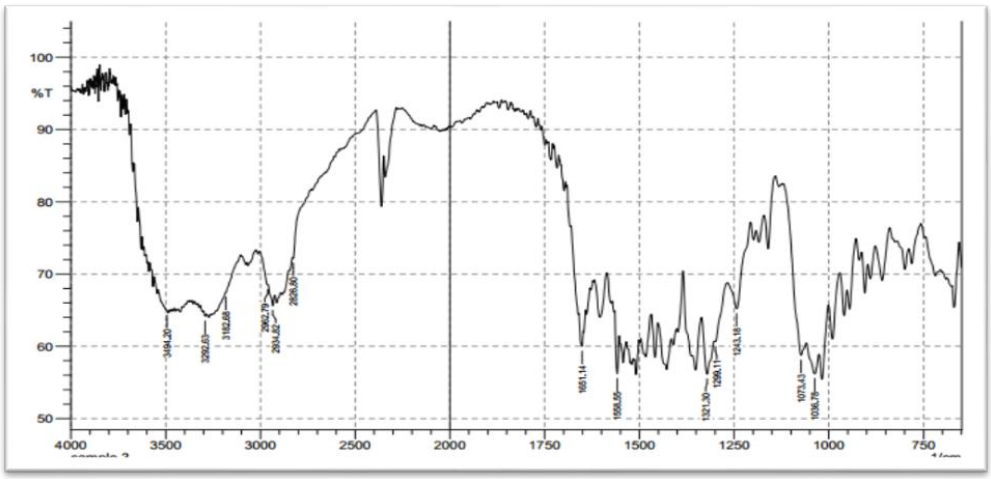

Figure no. 3: FT-IR graph of optimized formulation H-3 batche.

Pharmaceutical characterization of granules

Table no. 3: Micromeritic properties of granules.

Formulation	Parameter				
	BD (g/ml)	TD (g/ml)	CI (%)	HR	Angle of Repose
H-1	0.65±0.02	0.77±0.02	15.78±0.13	1.18±0.01	30.96±0.23
H-2	0.53±0.02	0.63±0.01	15.12±0.041	1.19±0.01	28.56±0.21
H-3	0.53±0.01	0.66±0.01	13.63±0.11	1.15±0.02	28.25±0.13
H-4	0.54±0.01	0.66±0.01	16.66±0.16	1.21±0.01	28.24±0.19
H-5	0.64±0.01	0.71±0.01	11.26±0.07	1.12±0.02	29.16±0.21

Optimization of Drug: Polymer Ratio

In preliminary trial batches, dummy batches were prepared by using guar gum. Ratio of drug and HPMC were optimized to get better matrixing property and prolonged release for the desired time. Five formulations comprising changed ratio of HPMC is mentioned in the table below:

Table no. 4: Formulation of Thiocolchicoside matrix tablet.

S. No.	Ingredients (mg/tab)	H-1	H-2	H-3	H-4	H-5
1.	Drug (Thiocolchicoside)	16	16	16	16	16
2.	HPMC	80	90	100	110	120
3.	Lactose	54	59	64	69	74
4.	PVP	10	10	10	10	10
5.	Talc (5%)	8	8.75	9.5	10.25	11
6.	Mg stearate (5%)	8	8.75	9.5	10.25	11
7.	Total weight of tablet	176	192.5	190	225.5	242

General Evaluation of Batches H-1to H-5

The Pfizer hardness tester was used to define the hardness of the tablets. The diameter and thickness of the tablets were determined using measuring scale and Vernier calipers. Determination of hardness, thickness and diameter of the tablets were determined and results were showed in the table below:

Table no. 5: Hardness, thickness and diameter Thiocolchicoside tablets.

S. No.	Parameter	Formulation code				
		H-1	H-2	H-3	H-4	H-5
1.	Hardness (kg/cm^2)	4.5 ± 0.5	5.4 ± 0.43	5.5± 0.64	5.3 ±0.74	5.6 ± 0.31
2.	Thickness (mm)	2.4	2.5	2.5	2.6	2.8
3.	Diameter (mm)	9.1	9.1	9.0	9.0	9.1

Weight variation, content variation friability and Swelling behavior in terms of swelling Index were also calculated. The results obtained for the different batches are stated in the table below:

Table no. 6: General characteristics of tablets.

Code	Weight variation test (%)	% of Content	Hardness (Kg/cm^2)	% Friability	Swelling Index
H-1	2.64±0.23	93.6%	3.3±0.33	0.82	48
H-2	2.93±0.64	92.2%	4.1±0.42	0.73	51
H-3	1.52± 0.11	95.6%	5.5±0.28	0.24	64
H-4	1.25 ± 0.17	91.8%	6.4±0.43	0.21	69
H-5	1.32 ± 0.08	92.4%	6.6±0.31	0.17	72

Swelling behavior in terms of swelling Index was calculated and the swelling Index for the various formulations is reported in the table below:

Table no. 7: Swelling Index and observation for swelling.

Sr. No.	Formulation	Swelling Index	General observation related to swelling
1	**H-1**	48	Swell and burst (not able to measure)
2	**H-2**	51	Slow swell But get deform after 2-3 hr release properties
3	**H-3**	64	Slow swelling
4	**H-4**	69	Slow swelling
5	**H-5**	72	Slow swelling

***In-vitro* drug release study of H-1 and H-5**

Formulations having the sufficient matrixing property for the desired time so it was decided to further study. For the further study formulation H-1 and H-5 were subjected to the dissolution study.

Table no. 8: *In vitro* drug release of batch H-1to H-5.

Time (Hrs.)	Cumulative Percentage Drug Release ±SD				
	H-1	**H-2**	**H-3**	**H-4**	**H-5**
0	0	0	0	0	0
1	18.42±1.21	15.21±0.42	7.12±0.52	12.32±0.34	13.43±0.27
2	28.93±1.53	26.29±0.34	13.63±0.63	24.21±0.82	23.53±0.72
4	42.24±0.89	38.48±1.42	28.41±0.73	41.32±0.46	36.74±0.34
6	53.82±1.47	48.44±1.63	42.62±0.32	64.63±0.84	47.84±0.92
8	72.38±2.04	62.25±2.04	58.72±0.72	70.54±0.71	61.63±0.74
12	78.84±0.82	73.87±1.28	88.43±0.53	76.73±0.81	74.73±0.71
24	82.41±1.82	78.45±1.23	93.15±0.85	78.43±0.17	75.95±0.67

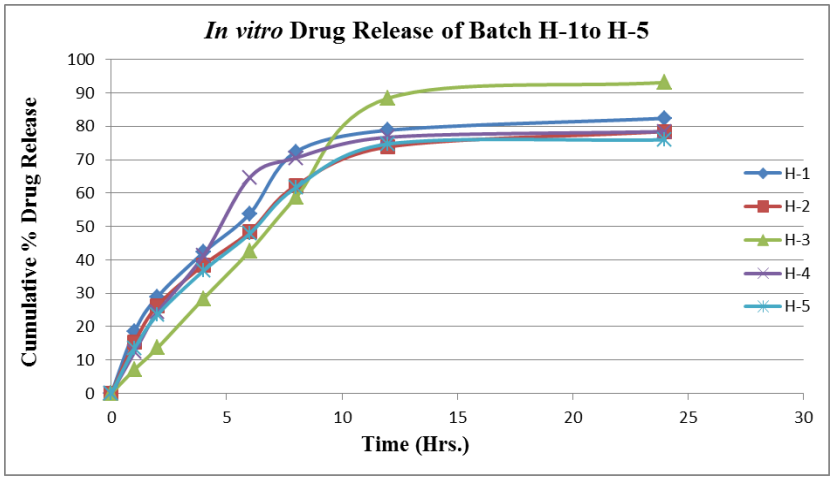

Figure no. 4: Dissolution profiles of Formulation H-1 to H-5.

Statistical treatment of *in-vitro* drug release study

Formulation **H-3** was showing highest drug release of approx. 93.15 % in 24 hrs. Further study was continued and subjected to the dissolution study with the media and conditions as mentioned above.

Table No. 9: *In-Vitro* Release Profile of H-3 Batch.

Time (hr.)	S.R.T.	Log T.	% C.R	Log % C.R	% Drug remaining	Log% drug remaining
0	0	0	0	0	100	2
1	1	0	7.12	0.852	92.88	1.968
2	1.141	0.301	13.63	1.135	86.37	1.936
4	2	0.602	28.41	1.454	71.59	1.855
6	2.449	0.777	42.62	1.629	57.38	1.759
8	2.828	0.903	58.72	1.769	41.28	1.616
12	3.464	1.079	88.43	1.947	11.57	1.063
24	4.898	1.380	93.15	1.969	06.85	0.836

Kinetic Modeling of Drug Release Data of H-3 Batch

Zero Order Kinetic Model for H-3 Batch Matrix Tablet

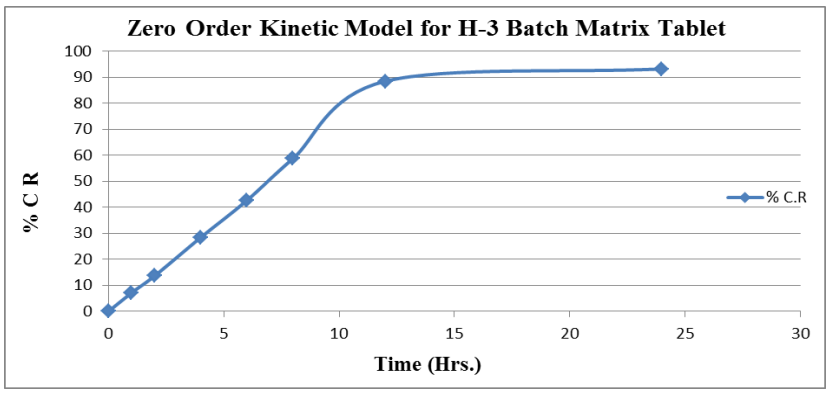

Figure no. 5: Zero Order Kinetic Model for H-3 Batch Matrix Tablets.

First Order Kinetic Model for H-3 Batch Matrix Tablets

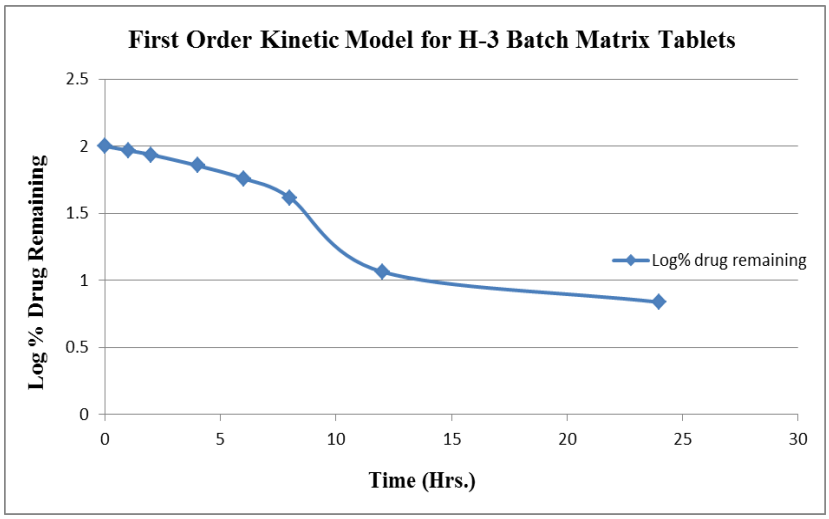

Figure no. 6: First Order Kinetic Model for H-3 Batch Matrix Tablets.

Higuchi Model of Kinetic for H-3 Batch Matrix Tablets

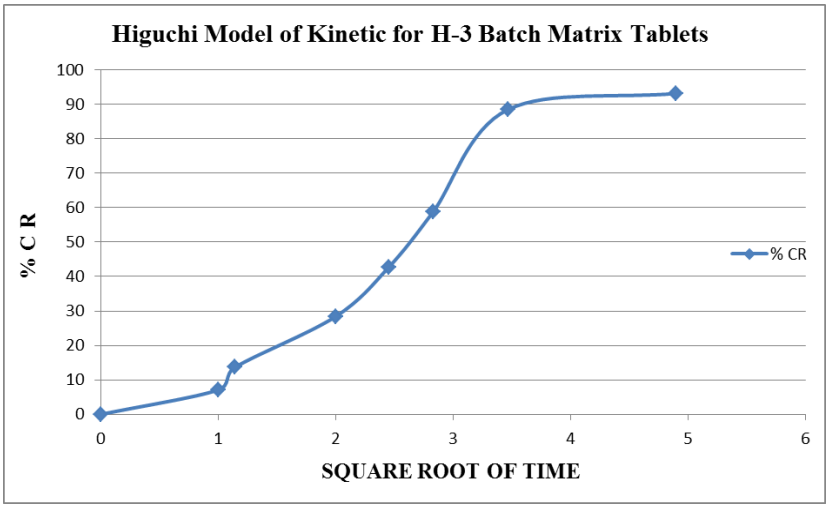

Figure no. 7: Higuchi Model of Kinetic Model for H-3 Batch Matrix Tablets.

Peppas-Korsemeyer Kinetic Model for H-3 Batch Matrix Tablets

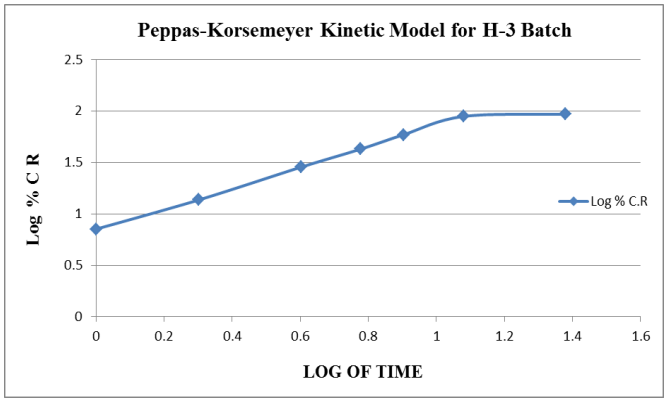

Figure no. 8: Peppas-Korsemeyer Kinetic Model for H-3 Batch Matrix Tablets.

Stability Testing

Table no. 10: Stability testing under following parameters.

Formulation Code	Color Change
H-1	Observed
H-2	Not Observed
H-3	Not Observed
H-4	Not Observed
H-5	Not Observed

DISCUSSION

Thiocolchicoside has the muscle relaxing effect with anti-inflammatory and analgesic effects. Since the side effects and lower bioavailability of Thiocolchicoside (25%) with half life of 3-4 hr, an effort has been made for the formulation development of matrix tablet for its oral application. The study was begun with observation of Organoleptic properties as thiocolchicoside is a yellow solid powder, solubility in water, melting point 195-197^{0}C and Partition coefficient was 0.34 ± 0.32. λ_{max} was found at 259.5 nm by UV-Visible spectrophotometer, linearity was achieved in the concentration range of 5-25µg/ml in phosphate buffer (pH 6.8) at 259 nm with regression coefficient of 0.997 following to the equation y=0.032x+0.004. Drug-excipient compatibility was studied by Physical observation and performed on FT-IR spectra, found no incompatibility.

Development was started with HPMC, at the same time the matrixing ability was also been used. After preformulation work, matrix tablets of drug were prepared by non aqueous wet granulation method. Initially the concentration of polymer was optimized to get better matrixing property and sustain release of the drug, prepared formulation H-1 to H-5 were evaluated and observed that it was self sufficient to achieve desired matrixing ability for desired time. Micromeritic properties of prepared granules were obtained all formulation batches possessed deviation limit under control. Tablet punched then of hardness, thickness and diameter of the tablets and weight variation, content variation friability and Swelling behavior in terms of swelling Index were optimum. Swelling behavior in terms of swelling Index was calculated. Formulation H-1 and H-5 were subjected to the dissolution study. The drug release study of the formulation H-1 to H-5, were showing good release but the formulation H-3 good drug release profile of 93.15±0.85. To find out the mechanism of drug released from the optimized formulation H-3 thiocolchicoside matrix tablets, the data was fitted to zero order, first order Higuchi and Peppas models of kinetics.

When the data obtained for release of drug for final formulation H-3 was plotted according to the zero order equation, the formulation shows a fair linearity, with higher correlation coefficient values which indicates greater the concentration faster the release rate of drug from tablet. Release of the drug from a matrix tablet containing hydrophilic polymers generally includes factor of diffusion. Diffusion is related to transport of drug from the dosage matrix in to the *in vitro* study fluid depending on the concentration. As gradient varies, the drug was released and the distance for diffusion increases. This could explain why the drug diffuses at a comparatively slower rate as the distance for diffusion increases, which was referred as square root kinetics or Higuchi's kinetics. In this experiment, the *in vitro* release profiles of drug the formulation could be best expressed by Higuchi's equation showing high linearity for the formulation H-3 representing the release process under the drug diffusion through polymer matrix.

CONCLUSION

Oral administration represents the most suitable and common route of drug delivery. However, the bioavailability of many of the drugs given orally is very low due to the reasons like short gastric residence time, drug instability in the GI tract and lack of intestinal permeation of the drug. Quantitative estimation of Thiocolchicoside in formulation was carried out by UV/Visible spectrophotometer. The work was started with the preparation of calibration curve in 6.8 pH Phosphate buffer. The methods have shown to follow the Lambert beer law in range of 5-25 µg/ml with the regression coefficient of 0.997. Drug-polymer interaction study was performed visually and with FT-IR study, the data and spectra related to the study shows no interaction of polymers with the Thiocolchicoside.

The use of hydrophilic polymer matrix is one of the most widespread approaches in formulating an extended-release dosage form. This is due to the fact that these formulations are relatively flexible and a well-designed system usually gives reproducible release profile. In the present work initially the polymers: drug ratio was optimized to get the better matrixing property and sustained release of the drug. In the present study it was found that Hydroxypropyl methylcellulose (HPMC) can be successfully used for the formulation of matrix tablet of Thiocolchicoside without any interference with Thiocolchicoside, it can also be concluded that this polymer alone or in combination with other polymers may be used for the formulation of any drug delivery system where matrix formation is required.

CONFLICTS OF INTEREST

There are no conflicts of interests.

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