2. LITERATURE REVIEW.

N. Khaleel Sk., et al\textsuperscript{9}.(2015) were reported a new analytical method for Abacavir, Lamivudine and Dolutegravir in bulk and pharmaceutical dosage form by using Inertsil ODS 250×4.6 mm, 5 m particle size column, mobile phase consisting of pH 3.0 Phosphate buffer:Acetonitrile: Methanol (50:20:30 %v/v),The flow rate was 1.0ml/min and eluents were detected at 257 nm by using PDA detector.

Chantelle Bennetto-Hood., et al\textsuperscript{10}.(2015) were reported a new analytical method for Dolutegravir in Human Plasma by HPLC-MS/MS Method by using XBridge (C18, 2.1 × 50 mm column), 60:40 acetonitrile,water mobile phase containing 0.1 % formic acid.

G. Srihari., et al\textsuperscript{11}.(2011) proposed a simple, sensitive, accurate and economic methods for quantitative estimation of abacavir sulfate and its formulations. Based on the diazotization with a characteristic absorption maximum at 450 nm.

Anil Yadav Nodagala., et al\textsuperscript{12}.(2013) proposed a method for simultaneous determination of Abacavir Sulphate and Lamivudine in Tablet dosage using Inertsil ODS (150×4.6, 5 m) with UV detection at 254 nm, mobile phase composition of mixed phosphate buffer (pH 4.0) and acetonitrile at a flow rate of 1ml/min method is validated as per ICH and USP guidelines.

Rajendran Vijayalakshmi., et al\textsuperscript{13}.(2013) were reported a new analytical method for Simultaneous Determination of Lamivudine and Abacavir Sulphate in tablets, By using Phenomenex C18 (250 × 4.6 mm, 5 m particle size) column, mobile phase of phosphate buffer (pH 7.8) and methanol in the ratio of 50:50 % v/v. The flow rate at 1.0 ml/min and detection was monitored at 216 nm.

G. Sravan Kumar Reddy., et al\textsuperscript{14}.(2014) were reported a new analytical method for lamivudine, abacavir & zidovudine by using UPLC, The mobile phase composed of Phosphate Buffer (60%) pH3.0 Methanol (40%) UPLC Grade. The flow rate at 0.25 ml per min. The wavelength was selected for the detection was 280 nm, the run time 3min.

Lenkalapally Matsyagiri., et al\textsuperscript{15}.(2013) proposed a simple and highly sensitive UV-Spectrophotometric method for Abacavir sulphate in different solvents in different
absorption spectra of maximum absorbance at pH 6.8 PBS, and distilled water were 219.82 nm, 296.21 nm and 216.08 nm.

M. Alagar Raja., et al\textsuperscript{16},(2012) developed a simple, selective spectrophotometric and RP-HPLC method for Abacavir sulfate gives better results in terms of accuracy, precision and linearity over a range of 5-25 and 10-120 g/ml, The limit of detection in tablet dosage form are 3 g/ml and 10 g/ml.

Ananda kumar Karunakaran., et al\textsuperscript{17},(2012) developed a simple, rapid RP-HPLC method for the simultaneous estimation of lamivudine and tenofovir disoproxil fumarate. By using Phenomenax Luna C18 (150 mm x 4.6mm i.d., particle size 5 m) column, acetonitrile:methanol: water 30:50:20 (v/v) as mobile phase. UV detection was performed at 258 nm.

Pradeep Kumar., et al\textsuperscript{18},(2012) were reported a rapid, precise, accurate, specific and simple RP-HPLC method for Abacavir in bulk and in tablet dosage form. By using HPLC 10AT SHIMADZU- SPD10A, using Phenomenex - Luna RP-18(2),250X4.6mm, 5 m column, water: acetonitrile 80:20 % (v/v) the flow rate of 1.0ml/min.

D. Anantha Kumar., et al\textsuperscript{19},(2010) developed simple, accurate and reproducible RP-HPLC method for lamivudine, zidovudine and abacavir in tablet dosage forms. By using HiQ SilC 18 V column, mobile phase 0.01 M potassium dihydrogen ortho-phosphate (pH 3.0) and methanol (55:45 v/v) at a flow rate of 0.8 ml/min. Detection at 272 nm and stavudine was used as the internal standard.

B. Venkata Kiran ., et al\textsuperscript{20},(2012) developed a method for abacavir sulfate in pharmaceutical dosage forms. By using C18 column mobile phase consists of (38:62 v/v) of methanol and 10ml of potassium dihydrogen orthophosphate. The wavelength of detection is 255nm.

M.Srinivasa Rao ., et al\textsuperscript{21},(2011) were reported two simple, accurate, rapid methods A and B for the spectrophotometric determination of abacavir sulfate. The drug was diazotized with nitrous acid followed by coupling with Phloroglucinol and Resorcinol.

T.Sudha ., et al\textsuperscript{22},(2010) developed and validated for the estimation of Lamivudine and Abacavir simultaneously, separation by a 5 m C18 column (150X4.6mmid) in isocratic
mode, with mobile phase of methanol: water (70:30, v/v) was used. The flow rate of 1.4 ml/min and eluents were monitored at 275 nm.

Venkata Mahesh R., et al\textsuperscript{23},(2011) developed a spectrophotometric for abacavir sulphate in bulk and tablet dosage form is based on the diazotization of abacavir with nitrous acid to form diazotized abacavir sulphate, followed by its coupling with β-naphthol to form a red coloured chromogen which shows maximum absorption at 574.0 nm and obeys Beer’s law in the concentration range of 5-20 μg/ml.

T. Raja., et al\textsuperscript{24},(2011) developed and validated of abacavir, lamivudine and zidovudine by HPLC, C18 column with UV detection at 270 nm. The mobile phase water: methanol (70:30 v/v) with 0.1% potassium dihydrogen phosphate pH 3.2 (adjusted with ortho phosphoric acid) addition of stavudine as internal standard.

V. Phani Kumar ., et al\textsuperscript{25},(2011) were reported a new analytical method for Saquinavir mobile phase of 0.01 M Potassium di hydrogen phosphate: acetonitrile: methanol: 1% orthophosphoric acid 20:20:40:20(v/v) at a flow rate at 1.0 ml/min and UV detection at 242 nm.

Amala mateti., et al\textsuperscript{26},(2012) were reported a simple, sensitive and accurate for Saquinavir by using UV-Visible Spectrophotometer T60 (model), λ max at 240 nm by using 20% methanol of ±5.0 nm with quartz cells of 1 cm path length.

Sureshbabu Kapavarapu., et al\textsuperscript{27},(2015) were reported isocratic reverse phase liquid chromatographic for Saroglitzar by using UV Visible detector, Altima ODS C18 (150 mm x 3.9 mm; 5 μ) column, mobile phase of mixture of disodium hydrogen phosphate buffer and acetonitrile in a ratio of 40:60 v/v at a flow rate of 1.2 ml/min.

B. Siddartha., et al\textsuperscript{28},(2014) were reported RP-HPLC method for Saroglitzar by using Kromasil C18 column (150 x 4.6 mm x 5 μ) , mobile phase of buffer (1 ml of ortho phosphoric acid was diluted to 1000 ml with water) and acetonitrile in the ratio of 35:65 v/v. The flow rate 1.0 ml/min.

Ekta H. Amin., et al\textsuperscript{29},(2014) were reported a UV - Spectrophotometric method for Saroglitzar. The detection at 294 nm. Methanol used as solvent. The validation of method was carried out as per ICH Guidelines.
Shekhar M. Bhavsar., et al\textsuperscript{30}., (2010) were reported a simple, sensitive and rapid RP-HPLC method for simultaneous determination Lornoxicam and Thiocolchicoside by using mobile phase of Buffer (5.7606 gm Ammonium Dihydrogen Phosphate in 2000 ml of milli-Q water, adjust pH 7.3 with Tri Ethyl Amine): Methanol 45:55, flow rate at 1.5 ml/ min, detection at 290 nm.

A. Suganthi ., et al\textsuperscript{31}., (2012) were reported a simple, sensitive and rapid RP-HPLC method for simultaneous determination Lornoxicam and Thiocolchicoside by using mobile phase 10mM ammonium acetate : methanol (50:50), pH7 adjusted with 1% triethyl amine. And subjected to forced degradation to alkali, acids conditions.

Harikiran. O.v., et al\textsuperscript{32}., (2013) were reported a simple, sensitive and rapid RP-HPLC method for simultaneous determination Lornoxicam and Thiocolchicoside by C8 column (X terra ,4.6 x 250mm, 5m, mobile phase Buffer ( 2.5mg of Sodium di hydrogen ortho phosphate in 1000 ml HPLC water, adjust pH 6.8 with sodium hydroxide)Acetonitrile of 35% and 65% flow rate 1.0 ml /min detection at 298 nm.

Madhusmita Sahoo., et al\textsuperscript{33}., (2011) were reported a simple, sensitive and rapid RP-HPTLC method for simultaneous determination Lornoxicam and Thiocolchicoside by using mobile phase methanol:chloroform:water (9.6:0.2:0.2v/v/v) detected at 377 nm.

Pankaj kumar., et al\textsuperscript{34}., (2012) were reported a simple, sensitive rapid RP-HPLC method for simultaneous determination Lornoxicam and Thiocolchicoside in human plasma ,mobile phase Phosphate buffer (pH 6.8) and Acetonitrile (70:30 v/v) in isocratic flow, flow rate 1 ml/min, Phenomenex Luna S -C18 column (5 m, 250mm X 4.60mm i.d.) with PDA detection at 295 nm.

Priyanka A Bhatt., et al\textsuperscript{35}.,(2013) were reported a quantitative analysis of Lornoxicam by Chromatographic separation Qualisil BDS C18 column (250×4.6 mm i.d.,5 particle size) 5mM ammonium acetate: acetonitrile (65:35 %v/v), pH adjusted 5 with glacial acetic acid. Flow rate was 1 ml/min and detection at 290 nm using PDA detector.

Prajapati Arun M., et al\textsuperscript{36}., (2014) were reported a method by reverse phase C18 column (Phenomenex C18, 250 mm × 4.6 mm, 5 m), mobile phase phosphate buffer (pH-3.5) :
acetonitrile (65:35, v/v) with a flow rate of 1 ml/min with Photo Diode Array detector at 275 nm.

Desai Chandni H., et al\textsuperscript{37} (2015) were reported a simple HPLC method for Thiocolchicoside in Capsule dosage forms. Thermo Hypersil Silica 5 \textsuperscript{5}, (250mm x 4.6mm). Mobile phase a mixture of N-Heptane: Methanol: Chloroform: Acetic Acid (70: 20: 10: 0.2 %v/v). The Flow rate was 1ml/min with UV Detection at 360 nm.

Mahesh Attimarad., et al\textsuperscript{38} (2010) were reported a simple, rapid, specific and precise HPLC method for lornoxicam separation of the drug by using eclipse C18 column (150 mm x 4.6 mm, 5 μm) as stationary phase and mobile phase is methanol: 0.1% formic acid in water (80:20 v/v), flow rate of 0.8 ml/min and UV detection at 381 nm.

B. M. Solanki., et al\textsuperscript{39} (2012) were developed a method for Lornoxicam. Mobile phase consisting of acetonitrile: phosphate buffer (40:60) adjusted to pH 6.0 with H\textsubscript{3}PO\textsubscript{4} on a C18 (ODS 250 × 4.6 mm) flow rate of 1.0 ml/min and detection at 381 nm.

M. T. Harde., et al\textsuperscript{40} (2012) Developed and validated UV Spectrophotometric methods for simultaneous estimation of Thiocolchicoside and Dexketoprofen in bulk and in tablet dosage form, detected at 237nm.

Gandhi Santosh., et al\textsuperscript{41} (2010) Developed and validated Thin layer chromatographic methods for simultaneous estimation of diclofenac sodium and Thiocolchicoside by using precoated silica gel 60 F254separation bands were detected at 254nm.

Lakshmi sivasubramanian., et al\textsuperscript{42} (2010) developed a new simple, accurate and economic spectrophotometric methods in UV/VIS region for the determination of paracetamol and lornoxicam methods were validated for linearity, accuracy and precision.

Kulandaivelu Karunakaran., et al\textsuperscript{43} (2014) developed a new simultaneous determination of paracetamol and lornoxicam by RP- HPLC. Using a C18 column, acetonitrile and 0.02 M potassium dihydrogen phosphate in the ratio of 35:65 (v/v) as the mobile phase, flow rate of 1.0 ml/min.

Veena G. Kulkarni., et al\textsuperscript{44} (2011) developed a simple, accurate and precise method by RP-HPLC for Paracetamol and Lornoxicam. By using Jasco HPLC with Grace C18 column (150 mm×4.6 mm i.d.) and UV/VIS detector using Acetonitrile: 0.04 mM Potassium
hydrogen phosphate buffer in the ratio of (60:40, v/v) flow rate of 1.0 ml/min and detection at 270 nm.

**Firoz Khan., et al**\(^{45}\),(2011) were developed and validated for lornoxicam by second order derivative shows λmax at 257.2 nm.

**Santosh Kumar M., et al**\(^{46}\),(2014) develop a RP-HPLC for Etoricoxib and Thiocolchicoside Hypersil BDS C18(250 x 4.6 mm, 5 μ.) with mobile phase mixture of Buffer and Acetonitrile 60:40,pH adjusted to 3.1, flow rate at 1.2 ml/min. UV detected at 258 nm.


**V. V. Chopade., et al**\(^{48}\),(2014) developed a chemicals stress degradation Studies for lornoxicam in self emulsifying drug by HPTLC, precoated aluminium plates with silica gel 60F-254 as the stationary phase. The solvent system consisted of dichloromethane: ethyl acetate: glacial acetic acid (9.5:0.5:0.1 v/v/v).

**G.Abirami., et al**\(^{49}\),(2014) were reported a new simple accurate RP-HPLC method for determination of Thiocolchicoside and Ketoprofen in bulk and tablet dosage form, by using C18 column (150 mm x 4.6 mm; 5 μ) mobile phase of Acetonitrile and Water in a ratio of 60:40 v/v at a flow rate of 1.0 ml/min. The detected at 300 nm.

**A. Suganthi., et al**\(^{50}\),(2012) developed a simple and sensitive spectrofluorimetric method for estimation of Thiocolchicoside in pure and pharmaceutical preparation.

**Shivani A. Trivedia., et al**\(^{51}\),(2015) developed a RP-HPLC method for thiocolchicoside and dexketoprofen trometamol in combined dosage form. Using a Agilent Eclipse C-8 column (5 μm, 250×4.6 mm) mobile phase acetonitrile: 0.1% o-phosphoric acid in water (41.9:58.1; pH 2.6). The flow rate 1 ml/min with UV detection at 254 nm.

**Suganthi A., et al**\(^{52}\),(2013) reported a Quenchofluorimetric method for lornoxicam in pharmaceutical formulation.
Sasmita Kumari Acharjya, et al\(^5\)\(^3\),(2010)\) were reported a Spectrophotometric methods for thiocolchicoside using, A double beam UV-VIS spectrophotometer (UV-1800, Shimadzu, Japan).

Jyoti Shrivastav., et al\(^5\)\(^4\),(2011)\) developed a HPTLC method for the simultaneous estimation of thiocolchicoside and diclofenac potassium. Chromatographic separation was performed on silica gel 60 F254 as the stationary phase and the toluene: acetone: methanol: formic acid (5:2:2:0.01 v/v/v/v) as mobile phase.

Pasupuleti Sunitha., et al\(^5\)\(^5\),(2015)\) were reported a precise, and accurate for the quantitative estimation Indinavir sulphate by RP-HPLC by using Zodiac ODS hypersil C18 column (250mm length, 4.6mm internal diameter and 5 m particle size) and a mixture phosphate buffer pH 5.5, Acetonitrile and Methanol (50:30:20) as a mobile phase. The drug was quantified by a UV detector at 260nm.

K. Rajitha., et al\(^5\)\(^6\),(2014)\) was developed a precise, and accurate for Indinavir sulphate by RP- HPLC column C\(_{18}\)G (250 X 4.6 mm; 5 ), a mobile phase of triethylammonium phosphate buffer (pH 2.5): acetonitrile in the proportion of 50:50 v/v, flow rate of 1.0 ml/min and detected wavelength of 220 nm using a UV detector.