3. REVIEW OF LITERATURE

The literature reviews suggest that various analytical methods were available for Olmesartan Medoxomil, Amlodipine Besylate, Indapamide and Hydrochlorothiazide. Reviews for all three drugs are as under:

3.1 Review of literature for Amlodipine Besylate

3.1.1 Amlodipine Besylate

Various Spectrophotometric methods \(^{(25-27)}\) for Amlodipine Besylate in API and tablet formulation were reported. HPLC \(^{(28)}\) for Amlodipine Besylate in tablet formulation was also available.

3.1.2 Amlodipine Besylate in combination with other drugs

Different chromatographic and UV methods were reported for Amlodipine Besylate with other drug combinations. UV method for Amlodipine Besylate and Bisoprolol Fumarate \(^{(29)}\), Amlodipine Besylate and Valsartan \(^{(30)}\), Losartan Potassium and Amlodipine Besylate \(^{(31)}\), Atenolol and Amlodipine \(^{(32)}\) in tablet form has been reported. RP–HPLC method has been also reported for Losartan potassium and Amlodipine Besylate \(^{(33)}\) and Valsartan and Amlodipine Besylate \(^{(34)}\) in combined dosage forms. Later on various other methods like two Spectrophotometric methods \(^{(35)}\) for Amlodipine Besylate and benazepril HCl, HPLC method \(^{(36)}\) for Perindopril Erbumine and Amlodipine Besylate, RP–HPLC method \(^{(37)}\) for Amlodipine Besylate and Olmesartan Medoxomil, UV \(^{(38)}\) for Amlodipine Besylate, Olmesartan Medoxomil and Hydrochlorothiazide, UV\(^{(39)}\) method for Amlodipine Besylate, Losartan Medoxomil and Hydrochlorothiazide, UV\(^{(40)}\) method for Amlodipine Besylate and Telmisartan, RP–HPLC \(^{(40)}\) method for Amlodipine Besylate and Metoprolol tartrate RP–HPLC \(^{(41)}\) method for Hydrochlorothiazide, Amlodipine Besylate and Telmisartan, HPLC \(^{(42)}\) method for Amlodipine Besylate, Valsartan and Hydrochlorothiazide, two UV \(^{(43)}\) methods for Amlodipine Besylate and Clopidogrel bisulphate, RP–HPLC \(^{(44)}\) method for Amlodipine Besylate and Telmisartan, stability indicating RP–HPLC \(^{(45)}\) method for Amlodipine Besylate, Olmesartan and Hydrochlorothiazide, RP–HPLC \(^{(46)}\) method for Telmisartan and Amlodipine Besylate, UV \(^{(47)}\) method uses the absorption ratio or Q-value for Atorvastatin and Amlodipine Besylate, UV \(^{(48)}\) method for Amlodipine and Metoprolol etc in combination has been reported.
3.2 Review of literature for Indapamide

3.2.1 Indapamide:
Two Spectrophotometric \(^{(49-50)}\) methods for Indapamide in bulk and pharmaceutical formulation were reported. Then HPLC \(^{(51-53)}\) method for Indapamide in bulk and solid dosage form was also available.

3.2.2 Indapamide with other drug combination
Various chromatographic methods were available for Indapamide with other drug combination like UV method for atenolol and Indapamide \(^{(54)}\), Perindopril and Indapamide \(^{(55)}\), Telmisartan and Indapamide \(^{(56)}\) also RP-HPLC method for Perindopril Erbumine and Indapamide \(^{(57)}\), Atenolol and Indapamide \(^{(58)}\), Indapamide and Perindopril \(^{(59)}\), Perindopril and Indapamide \(^{(60)}\) were reported. HPTLC \(^{(61)}\) method for Nebivolol and Indapamide in combined formulation was also reported.

3.3 Review of literature for Olmesartan Medoxomil

3.3.1 Olmesartan Medoxomil
In 2010, two Spectrophotometric and RP-HPLC \(^{(62)}\) method for Olmesartan Medoxomil was reported. Then various RP-HPLC \(^{(63-68)}\) methods for Olmesartan Medoxomil have been reported.

3.3.2 Olmesartan Medoxomil with other drug combination
Various HPLC methods for Olmesartan medoxomil with other drug combination have been reported. RP-HPLC method for Olmesartan Medoxomil and Hydrochlorothiazide acid \(^{(69)}\), Olmesartan Medoxomil and Hydrochlorothiazide \(^{(70)}\), Olmesartan, Amlodipine and Hydrochlorothiazide \(^{(71)}\), Olmesartan and Hydrochlorothiazide \(^{(72)}\), Olmesartan Medoximil, Metaprolol Tartarate \(^{(73)}\) were reported. UPLC \(^{(74)}\) method for Olmesartan Medoxomil and Hydrochlorothiazide has been also reported.

3.4 Review of literature for Hydrochlorothiazide

3.4.1 Hydrochlorothiazide
Spectrophotometric \(^{(75)}\) method for Hydrochlorothiazide has been reported.

3.4.2 Hydrochlorothiazide with other drug combination
Spectrophotometric \(^{(76)}\) method for Benazepril and Hydrochlorothiazide has been reported. Then HPLC \(^{(77)}\) and UV \(^{(78)}\) method for Hydrochlorothiazide and Candesartan Cilexetil was reported. Then Spectrophotometric \(^{(79)}\) method
for Irbesartan and Hydrochlorothiazide in combined formulation was reported. Then further Spectrophotometric method for Hydrochlorothiazide and Olmesartan Medoxomil \(^{(80)}\), Ramipril and Hydrochlorothiazide \(^{(81)}\) were reported. RP-HPLC methods for Telmisartan and Hydrochlorothiazide \(^{(82)}\) in pharmaceutical formulation were reported. Spectrophotometric methods for Valsartan and Hydrochlorothiazide \(^{(83)}\) and Atenolol and Hydrochlorothiazide \(^{(84)}\) in bulk and pharmaceutical formulation were reported. Also HPLC method for hydrochlorothiazide in triple drug combination such as Amlodipine Besylate, Valsartan and Hydrochlorothiazide \(^{(85)}\) and Candesartan Cilexetil and Hydrochlorothiazide \(^{(86)}\) has been reported.

### 3.5 Reported method for Amlodipine and Indapamide

Four Spectrophotometric methods \(^{(87, 88)}\) for Amlodipine Besylate and Indapamide have been reported. Then in 2012, four different RP-HPLC \(^{(89-92)}\) methods for Amlodipine Besylate and Indapamide in combined formulation have been reported.

### 3.6 Reported method for Olmesartan Medoxomile and Indapamide

Only two UV \(^{(93)}\) methods for this combined tablet dosage have been reported. Then one HPTLC \(^{(94)}\) and one RP-HPLC \(^{(95)}\) method for this combination was reported.

### 3.7 Reported Method for Olmesartan Medoxomil, Amlodipine Besylate and Hydrochlorothiazide

Initially RP-HPLC \(^{(96, 97)}\) methods for Amlodipine Besylate, Olmesartan Medoxomil and Hydrochlorothiazide in combined dosage form have been reported. Then two Spectrophotometric \(^{(98)}\) methods for this combination were also observed. Then also different RP-HPLC \(^{(99-102)}\) methods for the simultaneous estimation of these drugs have been reported.

### 3.8 Conclusion from Review of literature:

According to literature survey, it was found that numbers of analytical methods reported for selected drugs in single and its combination with other drugs.

One simultaneous equation method by UV and four RP-HPLC methods are available for combination of Amlodipine Besylate and Indapamide. As per my observation available methods required higher flow rate, expensive reagents...
and also more sample running time. So it was idea to develop a new Spectrophotometric and HPLC method for Indapamide and Amlodipine Besylate in combined dosage form.

For Olmesartan Medoxomil and Indapamide in combination, Simultaneous equation and Q-absorption method by Spectrophotometric and one RP-HPLC methods are available. Stability indicating HPLC method is not reported yet for these combinations. So it was thought of interest to develop a new Spectrophotometric and HPLC method including force degradation for Olmesartan Medoxomil and/or Indapamide in combination.

Various HPLC methods were reported for Olmesartan Medoxomil, Hydrochlorothiazide, Amlodipine Besylate in combined tablet dosage form. However, HPTLC method was not reported for this triple combination so it was thought of interest to develop a new HPTLC method for the same triple combination.