3. Literature review

3.1 Reported method for estimation of Esomeprazole

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<tr>
<th>Drug</th>
<th>Method</th>
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</table>
| Esomeprazole | LC-MS/MS | **Matrix:** Human plasma  
**Stationary phase:** Xbridge C\textsubscript{18} column  
**Mobile phase:** Acetonitrile: 5 mM ammonium formate buffered to pH 9 (30:70 v/v)  
**Data acquisition:** Data was acquired at \( m/z \) 346/198 for Esomeprazole and \( m/z \) 349/197 for the internal standard | 68        |
| Esomeprazole | HPLC   | **Matrix:** Methanol  
**Stationary phase:** C18 column  
**Mobile phase:** Acetonitrile: 20Mm phosphate buffer pH 7(60:40 v/v)  
**Detector:** UV detector  
**Detection wavelength:** 205nm | 69        |
| Esomeprazole | HPLC   | **Matrix:** Human plasma  
**Stationary phase:** Spherisorb CN  
**Mobile phase:** Acetonitrile: 20Mm phosphate buffer pH 3.2(30:70 v/v)  
**Internal standard:** lansoprazole  
**Detector:** UV detector  
**Detection wavelength:** 300nm | 70        |
| Esomeprazole | LC- MS | **Matrix:** Human, Rat and Dog plasma  
**Extracting solvent:** tert-butyl methyl ether: dichloromethane (3:2 v/v).  
**Mobile phase:** acetonitrile: ammonium acetate buffer: water (250:100:650 v/v). | 71        |
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| Esomeprazole         | Spectrophotometry| **Matrix:** In methanol  
Method A: zero order  
Detection wavelength: 303 nm  
Method B: First order derivative  
Detection wavelength: 292 nm  
Method C: Area under curve  
Detection wavelength: 294-310 nm  
Beer's range: 5-40 µg/ml | 72        |
| Esomeprazole         | Spectrophotometry| **Matrix:** In methanol  
Method: zero order  
Detection wavelength: 279 nm  
Beer's range: 4-40 µg/ml | 73        |
| Esomeprazole         | Spectrophotometry| **Matrix:** In methanol and chloroform  
Method A: 5-sulfosalicylic acid  
Detection wavelength: 365 nm  
Method B: N-bromosuccinimide  
Detection wavelength: 380 nm  
Beer's range: 5-40 µg/ml | 74        |
| Esomeprazole and Domperidone | Spectrophotometry | **Matrix:** In methanol  
Method: First derivative  
Detection wavelength: 285 and 301 nm  
Beer's range: ESO 5-40 µg/ml and DOMPE 8-30 µg/ml | 75        |
| Esomeprazole and Domperidone | Spectrophotometry | **Matrix:** In methanol  
Method: Simultaneous equation  
Detection wavelength: 284 and 301 nm  
Beer's range: ESO 5-20 µg/ml and DOMPE 8-30 µg/ml | 76        |
3.2 Reported method for estimation of Domperidone

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| Domperidone                 | Spectrophotometry | **Matrix:** In acetone  
**Method A:** 2, 3-dichloro-5,6-dicyano-1,4-benzoquinone  
**Detection wavelength:** 520 and 590 nm  
**Method B:** p-chloranilic acid  
**Detection wavelength:** 380 nm  
**Beer's range:** 20-40 µg/ml | 77         |
| Domperidone                 | HPLC          | **Matrix:** Rat plasma  
**Stationary phase:** C18 column  
**Mobile phase:** Acetonitrile: 20Mm  
phosphate buffer pH 3.2(30:70 v/v)  
**Internal standard:** lansoprazole  
**Detector:** Fluorescence detector  
**Detection wavelength:** 282 nm excitation and 328 nm emission | 78         |
| Domperidone                 | RP-HPLC       | **Matrix:** Methanol  
**Stationary phase:** C18 column  
**Mobile phase:** Acetonitrile: 20Mm  
phosphate buffer pH 3.2(40:60 v/v)  
**Detector:** UV detector  
**Detection wavelength:** 285 nm | 79         |
| Domperidone and Omeprazole | RP-HPLC       | **Matrix:** Methanol  
**Stationary phase:** Hypersil ODS column  
**Mobile phase:** Methanol:0.1 M ammonium acetate (pH 4.9) (60:40).  
**Detector:** UV detector  
**Detection wavelength:** 280 nm | 80         |
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| Domperidone and Pantoprazole| Spectrophotometry       | **Matrix:** 0.1 N HCl  
**Method A:** Simultaneous equation method  
**Detection wavelength:** 284 and 292 nm  
**Method B:** Q absorption ratio method  
**Detection wavelength:** 216 nm (Iso absorptive point) and 284 nm  
**Beer's range:** 5-30 µg/ml | 81        |
| Domperidone, Paracetamol and Tramadol | Spectrophotometry       | **Matrix:** In 0.1N NaOH  
**Method A:** Three wavelength method  
**Detection wavelength:** 218 nm, 256 nm and 289.6 nm  
**Method B:** Multi wavelength method  
**Detection wavelength:** 218.4 nm, 256 nm, 289.6 nm, and 295 nm  
**Beer's range:** 0-25 µg/ml for all drugs | 82        |
| Domperidone and Lafutidine  | Stability RP-HPLC       | **Matrix:** Methanol  
**Stationary phase:** Hypersil C18 column  
**Mobile phase:** Methanol:0.1 M Dipottasium hydrogen phosphate buffer pH 7.2(40:60 v/v)  
**Detector:** UV detector  
**Detection wavelength:** 280 nm | 83        |
| Domperidone and Cinnarizine | Spectrophotometry       | **Matrix:** 0.1 N HCl  
**Method A:** Simultaneous equation method  
**Detection wavelength:** 254 nm and 284 nm  
**Method B:** Q absorption ratio method  
**Detection wavelength:** 274 nm (Iso absorptive point) and 254 nm  
**Beer's range:** 5-20 µg/ml | 84        |
### 3.3 Reported method for estimation of Granisetron

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| Granisetron | LC-MS/MS | **Matrix:** Human plasma  
**Stationary phase:** Varian C<sub>18</sub> column  
**Mobile phase:** Acetonitrile: 5 mM ammonium acetate buffered to pH 5 (20:80 v/v)  
**Detector:** Sciex API 4000 mass spectrometer  
**Data acquisition:** The validated method monitored a Granisetron precursor ion at m/z 313 that produced a product ion at m/z 138 | 85        |
| Granisetron | LC-MS   | **Matrix and treatment:** Granisetron from human plasma was extracted by liquid-liquid extraction  
**Stationary phase:** C<sub>18</sub> column  
**Detector:** Mass analyzer in the multiple reaction monitoring mode  
**Data acquisition:** Data was acquired at m/z 313/138 for Granisetron and m/z 409/228 for the internal standard | 86        |
| Granisetron | HPLC    | **Matrix:** Human plasma  
**Stationary phase:** Spherisorb CN  
**Mobile phase:** Acetonitrile: phosphate buffer, pH 4.5 (15:85 v/v)  
**Detector:** Fluorescence detector  
**Detection wavelength:** Detection was performed using 305 nm as excitation wavelength and 365 nm as emission wavelength | 87        |
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| Granisetron and 7-hydroxy-Granisetron    | HPLC   | **Matrix:** Human plasma  
**Stationary phase:** ODS column  
**Mobile phase:** 0.1 M ammonium acetate buffer (pH 4.7): methanol (7:3 v/v)  
**Flow rate:** 1 ml/min  
**Detector:** Fluorescence detector  
**Detection wavelength:** Detection was performed using 310 nm as excitation wavelength and 420 nm as emission wavelength. | 88        |
| Granisetron and its 7-hydroxy metabolite | RP-HPLC| **Matrix:** Human plasma  
**Stationary phase:** Octyl silica column  
**Mobile phase:** Sodium salt of hexane sulfonate (0.95 g) and 0.1 g of disodium EDTA were added to 405 ml of acetate buffer (0.1 M pH 4.7): 95 ml of acetonitrile (405:95 v/v)  
**Flow rate:** 0.3 ml/min  
**Detector:** Fluorescence detector  
**Detection wavelength:** Excitation wavelength was 305 nm and emission wavelength was 360 nm  
**Retention time:** Separation was achieved within 30 minutes | 89        |
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<tbody>
<tr>
<td>Granisetron</td>
<td>HPLC</td>
<td><strong>Matrix:</strong> Human plasma&lt;br&gt;<strong>Stationary phase:</strong> Shim pack CLC-ODS column&lt;br&gt;<strong>Mobile phase:</strong> Methanol pH 2.2: 0.02 mol/l phosphate buffer containing 3.0% triethylamine (63:37 v/v)&lt;br&gt;<strong>Detector:</strong> Fluorescence detector&lt;br&gt;<strong>Detection wavelength:</strong> 301 nm for excitation and 365 nm for emission</td>
<td>90</td>
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<tr>
<td>Granisetron</td>
<td>LC-MS/MS</td>
<td><strong>Matrix:</strong> Human plasma&lt;br&gt;<strong>Stationary phase:</strong> C₁₈ column&lt;br&gt;<strong>Mobile phase:</strong> Acetonitrile: water (containing 10 mM ammonium acetate and 0.5% acetic acid) (40:60 v/v)&lt;br&gt;<strong>Flow rate:</strong> 1 ml/min&lt;br&gt;<strong>Run time:</strong> 2.0 min for each sample&lt;br&gt;<strong>Detector and data acquisition:</strong> Varian 1200 l tandem mass spectrometer equipped with an electrospray ionization source was operated in selected reaction monitoring mode with the precursor to product ion transitions m/z 313.4/138 for Granisetron and m/z 270/201 for the internal standard</td>
<td>91</td>
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| Granisetron  | HPLC   | **Matrix:** Human plasma  
**Stationary phase:** Octyl silica column  
**Mobile phase:** 0.05 M ammonium acetate buffer (pH 5.0): acetonitrile (73:27 v/v)  
**Flow rate:** 1 ml/min  
**Detector:** Mass analyzer  
**Data acquisition:** Data for Granisetron was recorded at m/z ratio of 138 and 124 | 92        |
| Granisetron  | HPLC   | **Matrix:** Serum, urine  
**Stationary phase:** Lichro cartridge column  
**Mobile phase:** 0.1 M acetate buffer (pH 3.5): acetonitrile (7:3 v/v)  
**Flow rate:** 1 ml/min  
**Detector:** Fluorescence detector  
**Detection wavelength:** 290 nm for excitation and 365 nm for emission  
**Retention time:** Resolution was achieved within 15 minutes | 93        |
| Granisetron and Doxorubicin | HPLC   | **Matrix:** 0.9% sodium chloride injection  
**Stationary phase:** Octyl silane column  
**Mobile phase:** Aqueous sodium dihydrogen phosphate: acetonitrile (60:40 v/v)  
**Flow rate:** 1 ml/min  
**Detector:** UV detector  
**Retention time:** Separation was achieved within 15 minutes | 94        |
### 3.4 Reported method for estimation of Rabeprazole

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</table>
| Rabeprazole           | Spectrophotometry, HPLC    | **Matrix:** In methanol  
**Method:** First derivative  
**Detection wavelength:** 310.2 nm  
**Beer's range:** 3-11 µg/ml.  
**Matrix:** Methanol  
**Stationary phase:** ODS column  
**Mobile phase:** Methanol : Water (70:30 v/v)  
**Detector:** UV detector  
**Detection wavelength:** 284nm.  
**Matrix:** Methanol  
**Stationary phase:** Silica gel 60F 254 sheet  
**Mobile phase:** Acetone: Toluene:  
Methanol (9:9:0.6 v/v)  
**Detection wavelength:** 284nm. | 95        |
| Rabeprazole and Domperidone | RP-HPLC                   | **Matrix:** Methanol  
**Stationary phase:** C18 column  
**Mobile phase:** Ammonium acetate buffer: Methanol: Acetonitrile  
(40:30:30 v/v, pH 7.44)  
**Detector:** UV detector  
**Detection wavelength:** 287nm | 96        |
| Rabeprazole           | RP-HPLC                   | **Matrix:** Methanol and water.  
**Stationary phase:** C18 ODS-AM column  
**Mobile phase:** Ammonium acetate buffer: Methanol(15:85 v/v, pH 8)  
**Detector:** PDA detector  
**Detection wavelength:** 280nm | 97        |
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| Rabeprazole          | RP-HPLC    | **Matrix**: Methanol.  
**Stationary phase**: $C_{18}$ column  
**Mobile phase**: Phosphate buffer: Acetonitrile (30:70 v/v, pH 7)  
**Detector**: UV detector  
**Detection wavelength**: 228 nm | 98        |
| Rabeprazole and Diclofenac sodium | Spectrophotometry | **Matrix**: In methanol  
**Method**: Simultaneous equation  
**Detection wavelength**: 281 and 294 nm  
**Beer's range**: 0-80 µg/ml for both drugs | 99        |
| Rabeprazole and Diclofenac sodium | HPLC     | **Matrix**: In mobile phase  
**Stationary phase**: C18 column  
**Mobile phase**: Dihydrogen phosphate buffer: Acetonitrile (60:40 v/v, pH 7.5)  
**Detector**: UV detector  
**Detection wavelength**: 285 nm | 100       |
| Rabeprazole and Itopride | RP-HPLC  | **Matrix**: In mobile phase.  
**Stationary phase**: Phenomenex $C_{18}$ column  
**Mobile phase**: Ammonium acetate buffer: Methanol (20:80 v/v, pH 4.5)  
**Detector**: UV detector  
**Detection wavelength**: 228 nm | 101       |
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| Rabeprazole and Mosapride | HPLC and TLC    | **Matrix:** Methanol  
**Stationary phase:** Phenomenex C\(_{18}\) column  
**Mobile phase:** Ammonium acetate buffer (pH 6.5): Methanol: Acetonitrile (30:40:30 v/v/v)  
**Detector:** UV detector  
**Detection wavelength:** 276nm. | 102       |
| Rabeprazole and Domperidone | RP-HPLC         | **Matrix:** In mobile phase.  
**Stationary phase:** C\(_{18}\) column  
**Mobile phase:** Phosphate buffer: Methanol (65:35 v/v, pH 7.4)  
**Detector:** UV detector  
**Detection wavelength:** 290 nm | 103       |
### 3.5 Reported method for estimation of Levosulpiride

<table>
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<tr>
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| Levosulpiride | Spectrophotometry       | **Matrix:** In 0.1 N NaOH  
**Method:** zero order  
**Detection wavelength:** 291 nm  
**Beer's range:** 25-125 µg/ml  
**Matrix:** In methanol  
**Method:** zero order  
**Detection wavelength:** 288.7 nm  
**Beer's range:** 25-125 µg/ml | 104       |
|          |                         | **Matrix:** In methanol  
**Method:** First order derivative  
**Detection wavelength:** 282.4 nm  
**Beer's range:** 25-125 µg/ml |           |
| Levosulpiride | Spectrophotometry and HPLC | **Matrix:** In 0.1M HCl  
**Method:** Zero order  
**Detection wavelength:** 291.5 nm  
**Beer's range:** 10-50 µg/ml  
**Matrix:** Methanol  
**Stationary phase:** C₁₈ column  
**Mobile phase:** Methanol : Phosphate buffer(15:85 v/v pH 3.5)  
**Detector:** UV detector  
**Detection wavelength:** 293nm. | 105       |