**Development and validation of spectrophotometric method for determination of imipramine hydrochloride in tablets (solid materials)**

**Supplementary data**

**Table S1.** Independent variables and their levels used for Box-Behnken design.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Unit** | **Factor** | **Range and level** |
|  |  |  | **-1** | **0** | **+1** |
| Volume of K2Cr2O7 (0.01%) | mL | **A** | 0.30 | 0.60 | 0.9 |
| Volume of H2SO4 (10M) | mL | **B** | 2.00 | 5.00 | 8.00 |
| Concentration of Imipramine | mgL-1 | **C** | 8.00 | 14 | 20.00 |

**Table S2.** Selectivity and specificity: tolerance amount of excipients at 14 µg mL-1 imipramine HCl.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Excipients | Tolerated Concentration of excipients (%)  | Absorbance at 620 nm | Tolerance amount of excipients (g mL-1) | ± Change in Absorbance | % Recovery of drug  |
| Lactose | 1×10-2 | 0.979 | 100 | 0.003 | 99.74 |
| Sucrose | 2.5×10-4 | 0.98 | 2.5 | 0.002 | 99.85 |
| Starch | 5×10-3 | 0.99 | 50 | 0.008 | 100.87 |
| Poly ethylene glycol  | 5×10-3 | 0.977 | 50 | 0.005 | 99.54 |
| Mannitol | 1.25×10-3 | 0.976 | 12.5 | 0.006 | 99.44 |
| Povidone | 1×10-2 | 0.986 | 100 | 0.004 | 100.46 |
| Polyvinyl pyrrolidone | 2.5×10-3 | 0.975 | 25 | 0.007 | 99.34 |

**Table S3**. Accuracy of proposed and reference methods for assay of active imipramine in tablet formulations.

|  |  |
| --- | --- |
| Tablet formulations | Active imipramine HCl in tablets by proposed method (PM) & reference method (RM) |
| Measured concentration ±SD(µg mL-1) | RSDa (%) | Recoverya (%) |
| PM | RM | PM | RM | PM | RM |
| Imipramine HCl 25 (SGH) | 14.007 ± 0.014 | 13.991 ± 0.027 | 0.102 | 0.192 | 100.05 | 99.94 |
| Imipramine HCl 25 (Actavis, UK) | 14.002 ± 0.016 | 14.011 ± 0.035 | 0.116 | 0.248 | 100.01 | 100.08 |

a5 independent analyses



**Fig. S1.** Mole ratio plot for the reaction of imipramine with potassium dichromate (2:1): different volumes (0.2 to 1.2 mL) of 4.419×10-4 M imipramine HCl and fixed volume (0.5 mL) of 4.419×10-4 M potassium dichromate. Each set was performed in 10 mL volumetric flask.



**Fig. S2.** Error (*S*c) in the determination of imipramine HCl.



**Fig. S3.** % Uncertainty confidence limit against the studied imipramine HCl concentration at 95% confidence level.