✓ Simple, economical, analytical and bio-analytical methods (in rat plasma) were developed. The analytical and bio-analytical methods were validated as per ICH and USFDA guidelines respectively.

✓ Assessment of in vitro and in vivo drug interaction of selected drugs used in migraine prophylaxis (propranolol hydrochloride, amitriptyline hydrochloride, carbamazepine, flunarizine dihydrochloride & levetiracetam) and analgesics (paracetamol and aceclofenac) was carried out.

✓ Both in vitro and in vivo drug interactions were observed when propranolol hydrochloride, amitriptyline hydrochloride and carbamazepine were assessed with paracetamol indicating in vitro - in vivo correlation amongst these drugs. This study suggests that concurrent administration of paracetamol with the above said drugs is to be avoided to minimize the drug interactions. An interaction study and TDM in human volunteer or migraine patients may be required to adjust the dose and time gap required for administration of the drugs that exhibited interactions.

✓ In vitro drug interactions were not observed with

   a. Paracetamol and levetiracetam/flunarizine dihydrochloride.

   b. Migraine prophylactic drugs and aceclofenac.

This indicates that, these drugs may not affect the gastric environment that may have affected the dissolution of the drugs. However, drug interaction assessment in human volunteers and migraine patients may also be required to confirm the safety of the concurrent administration of these drugs.

✓ A simple, sensitive and validated bio-analytical method was developed for simultaneous estimation of derivatized pregabalin, gabapentin and duloxetine hydrochloride in human plasma by gas chromatography which can be employed for drug interaction assessment and pharmacokinetic determination.