

# Section-II



Chapter-2  
RESEARCH  
ENVISAGED

## 2. RESEARCH ENVISAGED

Literature survey revealed that there are certain molecules with 5-HT<sub>2C</sub> agonistic activity that are in preclinical and clinical stages of investigation. The best example came out to us is lorcaserin, a potent and selective 5-HT<sub>2C</sub> agonist, recently approved by US-FDA for the treatment of obesity. In light of the literature reports, it was considered worthwhile to initiate a hit-to-lead research program with the objective of seeking potent 5-HT<sub>2C</sub> agonistic activity. Considering lorcaserin as a lead molecule, the Pharmaceutical Chemistry laboratory of The M.S. University of Baroda synthesized a series of compounds which were planned to be evaluated for their 5-HT<sub>2C</sub> agonistic potentials using suitable *in vitro* and *in vivo* biological models. Basic emphasis was given on the following points:

1. To screen the new synthesized compounds for their 5-HT<sub>2A</sub> and 5-HT<sub>2B</sub> potentials using isolated rat aortic strip and isolated rat fundus preparations.
2. To evaluate the compounds which were found inactive in the above *in vitro* experiments for their 5-HT<sub>2C</sub> agonistic activity using suitable animal model of depression.
3. To assess the safety profile of the selected potent compounds.
4. To assess the selected (at the primary level of screening) potent compounds for anxiety via 5-HT<sub>2C</sub> receptor using suitable animal model and to evaluate their 5-HT<sub>2C</sub> agonistic profile using appropriate 5-HT<sub>2C</sub> antagonist.
5. To evaluate the selected compounds pharmacologically for obesity via 5-HT<sub>2C</sub> using appropriate animal model in presence of 5-HT<sub>2C</sub> antagonist.
6. To evaluate the selected compounds pharmacologically for erectile dysfunction via 5-HT<sub>2C</sub> using suitable animal model for penile erection in presence of 5-HT<sub>2C</sub> antagonist.
7. To estimate neurotransmitter i.e. dopamine & 5-HT levels in compound treated rat brains by HPLC technique to substantiate the *in vivo* results.