7. FUTURE DIRECTIONS

- In present study, marker based approach was used for quality control and standardization of *Gymnema sylvestre* extract and its marketed formulations. Development of total chromatographic fingerprint would suggest extract as whole entity and could be complimentary approach for its quality control and standardization.

- In current pharmacokinetic work, approach of analysis of targeted metabolite was followed and based on this approach GMG was discovered to be bioactive metabolite. However, future systematic studies with respect to global metabolite profiling after oral administration of extract are warranted and which could provide helpful information on other biotransformed products of GMG or gymnemic acids or other chemical class from the extract. The metabolite/s could have role in anti-hyperglycemic activity of GMG.

- Detailed *in vitro* agonistic/antagonistic and antidiabetic studies of GMG on various receptors and cell lines are hereby required to confirm the exact mode of action.

- Preliminary preclinical acute oral toxicity studies on GMG showed absence/less signs of toxicity. Detailed toxicity studies at various levels of genotoxicity, mutagenicity and teratogenicity after chronic exposure of GMG are needed for developing it as better drug candidate.

- Early observations on limited number diabetic animals showed promising anti-hyperglycemic and anti-hyperlipidemic potential of GMG, needs clinical validity of these observations in planed controlled clinical studies in diseased subjects.

- Con-committant administration of *G. sylvestre* extract with glimipiride resulted beneficial pharmacodynamic interactions after sub-chronic treatment for 28 days. Chronic con-committant administration (more than 28 days) of both might leads to hypoglycemic shock and needs further investigations.