6. CONCLUSION

Diabetes mellitus is a major chronic endocrine disorder with high rate or morbidity and mortality. The available treatment for diabetes is mainly of allopathic origin and associated with many adverse drug reactions. Herbal drugs are the oldest known healthcares available to mankind, enlisted in naturopathic, ayurvedic, homeopathic and other medicine systems obtained from natural sources. Being obtained from natural sources the toxicity profile is low for herbal drugs and possesses characteristics like low/minimum cost, complete accessibility and enhanced tolerance. Hence it is essential to explore the treasure of plant medicines to be utilized for treatment of diabetes with amputating risk of adverse drug reactions and the cost factor of treatment.

Current study focused on the phytochemical and pharmacological evaluations of ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii*. Phytochemical study revealed the presence of quercetin and tannic acid as major active constituents in *Citrus maxima* fruit peel and *Anvillea garcinii* respectively.

Though the ethanolic extracts demonstrated hypoglycemic and lipid lowering activity, still there is study warranted for correlating the mechanisms of glycemic control (involving receptor level) and phytochemical constituents (focusing on active antidiabetic contents). The current study can be useful for future designing of any clinical trials for development of any suitable oral dosage form of ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii*. 
In vitro study on isolated tissues like rat ileum, rat colon & rat rectum was an approach to mimic gastrointestinal motility complications in diabetes. Diabetic autonomic neuropathy affects the excitatory and inhibitory responses in gastrointestinal tract. Intestinal hypermotility can be seen due to loss of nitric oxide neurons. Being excitatory in nature, cholinergic neurons stimulates gastrointestinal tract and sympathetic, nitergic neurons inhibits motility in gastrointestinal tract. In diabetes the intestinal motility is affected due to impairment in inhibitory responses. Treatment with ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii* demonstrated positive effect on altered gastrointestinal motility. Diabetic rat shows increased sensitivity by intestinal smooth muscles to Acetylcholine (ACh) and treatment with ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii* diminished this hypersensitivity.