CHAPTER 6. CONCLUSIONS

Observations from our study demonstrate the anti diabetic effect of methanolic extracts of *A. acuminata* leaf and bark in diabetic animals. AA extracts also showed beneficial effect on parameters of diabetic neuropathy and nephropathy, indicating less neuronal and renal damage inflicted by DM.

Methanolic extracts of AA also exhibited beneficial effects on cardiac functional parameters like, mean blood pressure, heart rate, hypertrophy indices, lipid levels, serum LDH and CK-MB levels, oxidative stress status and insulin resistance. This indicates that AA has beneficial effect in preventing cardiovascular complications associated with diabetes mellitus.

AA methanolic extracts possess potent antioxidant action, which may be an important mechanism of its protective effect on diabetic complications. In addition to this, based on the PTP1B inhibitory activity of extracts, we can conclude that it has ability to reduce insulin resistance and increase glucose uptake in tissue. These effects may be on account of its diverse tannin and flavonoid contents. Apart from this, as discussed earlier, various chemical constituents present in AA have demonstrated varied actions like, insulin secretogogue, hypolipidemic, hypotensive, anti-inflammatory, analgesic, neuroprotective, TNF α inhibitory, COX inhibitory, prevention of AGE formation and beta cell protective actions, which all in combination may provide an overall protection against disease progression and development of complications as observed in our study.

The results of the present study can prove to be a useful lead for further investigational studies on AA, for evaluating the efficacy of this plant in management of Diabetes mellitus and its complications. Further, studies can be directed towards the isolation and characterization of active constituents present in the plant and estimation of mechanisms responsible for its beneficial effect. In addition to this, the studies can be designed to evaluate the safety and efficacy profile of the plant in preclinical and clinical settings.