9.2 CONCLUSION

Gelatin encapsulated *Myxopyrum serratulum* nanoparticles (GMSN) and Gelatin encapsulated *Nilgirianthus ciliatus* nanoparticles (GNCN) were prepared by solvent evaporation method using gelatin polymer and studied the antioxidant and antidiabetic effect by *in vitro* and *in vivo* methods for the first time. The *in vitro* results showed that MS, NC and GMSN2, GNCN3 exhibited excellent antidiabetic and antioxidant activities, while MS and GMSN2 exhibited better activity in all *in vitro* studies compared to NC and GNCN3. Hence, MS and GMSN2 were selected to confirm the antidiabetic effect by HFD induced diabetes in C57BL/6J mice. The study revealed that GMSN2 at low dose (80 mg and 160 mg/kg b.wt) significantly decrease the blood glucose, triglycerides, cholesterol, increase the antioxidant enzymes and reverse the carbohydrate metabolic enzyme levels in liver of diabetes induced C57BL/6J mice. This can be attributed due to the characteristics effect of sustained release of active constituent’s in the nanoparticles. The nanoparticles prepared for the proposed method released the active constituents slowly in the stomach pH (acidic pH 1.2) and rapidly at the intestinal pH (alkaline pH 7.2). This release is due to the inclusion of gelatin polymer in the preparation of nanoparticles. Thus, we suggest that the nanoparticles system can be applied to overcome other water poorly soluble herbal medicines and furthermore to decrease the treatment dosage. This study could serve as a useful reference to allow the future exploitation of nanoparticulate system as a novel preventive and therapeutic measure for the treatment of diabetic and other diabetic related physiological disorders.