CHAPTER – XII
CONCLUSION

From the results obtained in the present study, it could be well evident that the methanolic leaf extracts of the plant *Pimenta dioica* exhibit potential anti-diabetic, antihyperlipidemic and anti-oxidant roles in STZ – induced diabetic rats in a very substantial manner. This was well documented by the studies on the serum glucose and insulin levels, lipid profile status and the enzymatic assays which dreastically deviated in the STZ – induced diabetic rats, which on treatment with *P. dioica* leaf extract, restored their normal levels. Obviously, this was established again by the results of the histopathological examination of the pancreatic and liver tissues which fetched direct evidences in terms of cellular recovery after *P.dioica* treatment.

The GC-MS analysis also proved the above results, by screening eight potent components which could function in the repairing mechanism of the pancreatic β – cells in stabilizing the blood glucose levels. The existence of the above constituents furthermore authenticates the medicinal properties of *P.dioica* in a remarkable manner. The molecular docking studies explored the potential interaction between the inhibitorprotein and the predominant
phytocomponents from *P. dioica* (ligand). This study still elucidate the drug receptor interactions and has created vital clues for the formation of viable drug from *P. dioica* with required modifications.

The biomechanical studies carried out in the bones of the diabetic induced and *P. dioica* treated rats also exhibited admirable variations especially after bone recovery due to plant extract treatment. The results of the present study supports the beneficial roles played by the methanolic leaf extracts of *Pimenta dioica*. Therefore, the above investigation warrents the potential medicinal properties of *Pimenta dioica* in the treatment of diabetes.