Chapter-5

Summary

The folk literature of the Bodo people still kept alive many herbal remedies for various diseases and disorders. In the district Kokrajhar, BTC, Assam, India Bodo people locally used the *Hodgsonia heteroclita* as an antidiabetic tonic since time long. As it has extremely bitter test people undertook to know its importance and the species became rare in the region.

The plant material retains several phytocompounds which are useful natural resource for wide implications. The phytochemical screening of fruit pulp of *Hodgsonia heteroclita* proved that it has many natural phytoconstituents like saponnins, steroids, alkaloids, tannins, carbohydrates, flavonoids, anthraq-uinones, glycosides, reducing sugars etc. As per scavenging activities, the fruit pulp shows a potent source of natural antioxidants which may help in the destructions of free radicals which may be the major cause of anti hyperglycemia. As per GCMS analysis it has been identified 12 (twelve) bioactive compounds. The identified bioactive compounds are p-Hydroxy benzoic acid, Salicylic acid, o-Coumaric, p-Coumaric, Caffeic acid, Protocatechuic acid, 2,4-dihydroxybenzoic acid, Vanillic acid, Gallic acid, Ferulic acid, Syringic acid and Gentisic acid which are well known antioxidative compounds. Among these identified phytocompounds, p-Hydroxy benzoic acid, Salicylic acid, Protocathecuic acid, Ferulic acid, Caffeic acid, Vanillic acid, p-Coumaric acid, Gallic acid have been proven as antihyperglycemic compounds.

The *invivo* experimentation of *Hodgsonia* fruit pulp extract feeding upon the alloxan induced diabetic rats proved a severe reduction of the blood glucose level. The assessment endogenous enzymes (SOD, GPx) of pancreatic tissue shows the adequate improvements of antioxidative enhancing capacity. The antiperoxi-dative and antioxidative efficacy of *Hodgsonia* fruit pulp by estimating the concentration of malondialdehyde (MDA) revealed the significant validation and the protein carbonyl content shows no effective protein carbonylation. The histopathology of pancreatic tissue of the experimented

rats revealed the restoration of the number and size of the β-cells of pancreatic Islets of Langerhans.

By this research it has confirmed that the fruit pulp of *Hodgsonia heteroclita* has a potential source of natural antioxidative and antihyperglycemic phytocompounds which has the effective capacity to rectify the diabetes mellitus. Besides, it may unveil a new dimension in the formulation of new drugs for the control of diabetes mellitus which may increase the quality and longevity of the life of diabetic patients. Thus the finding of this research may proved a wonder discovery in the field of pharmacological science.