CHAPTER - 8

SUMMARY AND CONCLUSION

The high morbidity, socioeconomic burden and unsuccessful treatment are the key factors that define the pathophysiology of brain. Thus, the exploration of novel neurotherapeutic agent to enhance the neuroprotective effects is currently needed. Previous reports confirmed that all the neurodegenerative disorders are multifactorial. Oxidative stress is one of the major etiology of anxiety, depression, dementia and Parkinson’s disease. The consequences of oxidative stress and their pathogenesis in all of these diseases can occur by increased free radical generation leading to imbalance in endogenous antioxidants and this can be encountered by flavonoids. At present, naturally derived antioxidants from medicinal plants have gained great interest due to expected outcome of treatment with less undesirable side effects and low cost.

With this background, the present study was undertaken to determine the Neuropsychopharmacological activity of ethanolic extract of *H. hookerianum* (EEHh) and glycosidic flavonoid enriched extract of *H. hookerianum* (GFHh). Anxiolytic, antidepressant, antiamnesic and antiparkinson like effects of EEHh and GFHh were assessed using established neuropharmacological and biochemical methods.

Initially, the powdered sample of *H. hookerianum* aerial parts was standardized and the extracts EEHh was prepared by successive soxhlation and GFHh was prepared by acid hydrolysis method. The presence of active principle glycosidic flavonoids were identified and quantified by appropriate analytical technique called HPTLC and *in vitro* scavenging potential of EEHh and GFHh were also analysed.

Oral administration of these extracts amends psychopharmacological effects in stress and neuroleptic induced animals. EEHh and GFHh treatment gradually reduced the fear (anxiolytic), removed mental tiredness (antidepressant), improved the memory power (antiamnesic) and motor co-ordination activity (antiparkinson). Additionally, they
increased the level of depleted brain antioxidants and decreased the lipid peroxidation as well as regulated the specific neurotransmitters of anxiolytic, antidepressant, antiamnesic and antiparkinson in animal models bearing close resemblance to human psychopharmacological effects. HPTLC assay revealed a high concentration of flavonoids in these extracts. Thus we proposed that the flavonoids present in these extracts modulated the neurological activity by their antioxidant effects.

Among the extracts of *H. hookerianum*, glycosidic flavonoid enriched extract showed greater effects compared to ethanolic extract of *H. hookerianum*. This may be due its multiple targets and high concentration of flavonoids. Thus the preclinical findings substantiate that GFHh was found to be safe, non-toxic, neuroprotective and efficient source of antioxidant.

Further evidences are required to evaluate the molecular mechanisms and neuro rescue approaches in order to develop “new lead molecule” as novel therapeutic agent for neurodegenerative disorders in clinical findings.