2. SCOPE OF THE STUDY

Parkinson’s disease and other neurodegenerative disorders including, Alzheimer’s disease, dementia and motor neuron disease are projected to surpass cancer as the second most common cause of death among the elderly by the year 2040. Despite advanced therapeutic interventions, the cure of PD is still challenging; the available treatment strategies only provide symptomatic relief with severe side effects on long term treatment. In addition, the conventional monotherapy hardly retards the disease progression and associated complications. Therefore, it is of urgent need to develop new drug with multi-targeted pharmacological actions; better curative effect; prevention of further disease progression along with minimal side effects in the long term use. To meet the perspective, an increasing interest has been focused on pluripotent drug candidates derived from medicinal plants, which have a long history of credibility and possess immense potential to prevent and/or cure chronic disorders including neurodegenerative diseases. Pertaining to it, the health promotive, disease preventive and rejuvenating approach of Indian System of Medicine-Ayurveda, is gaining greater attention and popularity in many regions of the world. Interestingly, despite the wide use of these remedies by folklore since time immemorial; the actual mechanism of action is not yet known or systematically analysed. It may be one of the reasons behind mere global presence of Ayurvedic drugs as well as less demand in International market. Therefore, a well-designed scientific evaluation of these potent therapeutic candidates in the PD model will be valuable for the development of novel anti-Parkinsonian drugs. Taken together, the present research has been designed to investigate the neuroprotective effect of withanolides and curcuminoids in the MPTP model of PD. The findings of the present study may provide scientific rationale and therapeutic lead for the prevention and management of PD in long term treatment. In addition, the present research work has attempted to provide valuable insights about the pleiotropic mechanism of action of withanolides and curcuminoids for the prevention
and treatment of PD. With modest efficacy from multiple beneficial activities, pleiotropic drug candidates like withanolides and curcuminoids can be effective without side effects even in long term use for the prevention and treatment of PD.