The neuroprotective potential of red cabbage (*Brassica oleracea* L. *var. capitata f, rubra*) in Parkinson's disease: A systematic review

M. S. F. Sapra[1], M. I. Manuha[1], P. K. Perera[2], W. D. N. Dissanayake[3]

[1]*Department of Unani Pharmacology, Faculty of Indigenous Medicine, University of Colombo, Sri Lanka*

[2]*Department of Ayurveda Pharmacology, Pharmaceutics and Community Medicine, Faculty of Indigenous Medicine, University of Colombo, Sri Lanka*

[3]*Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka*

Parkinson's disease (PD) is a progressive neurodegenerative disorder and a major contributor to global morbidity. Oxidative stress, neuroinflammation, and mitochondrial dysfunction are central to its pathogenesis, yet current therapies remain primarily symptomatic. Red cabbage (*Brassica oleracea* L. *var. capitata f. rubra*), traditionally recognized in *Unani* medicine as *Kurnub* for its effects on tremor, is rich in anthocyanins, sulforaphane, and other phytochemicals. This review aims to systematically assess the literature on the neuroprotective potential of red cabbage and its bioactive constituents in PD. A systematic literature search was conducted following PRISMA guidelines using PubMed, Scopus, Google Scholar, and ScienceDirect (2014–2024). Only preclinical studies were included. Eight studies met the inclusion criteria. The reviewed studies used either whole red cabbage extracts or isolated compounds derived from it (e.g., sulforaphane, anthocyanin extracts). Findings indicated that these interventions enhanced antioxidant defences, decreased neuroinflammation, preserved mitochondrial function, and improved motor outcomes in *in vitro* PD models. However, no clinical trials in humans were identified, highlighting a major translational gap. Current evidence suggests that red cabbage constituents may provide neuroprotection through multiple pathways. Future research requires standardized formulations, pharmacological validation, and well-designed clinical studies to assess efficacy and safety in humans. These findings support the potential of red cabbage as a source for novel adjunctive therapies in PD.

Keywords: *Parkinson's disease, Red cabbage, Neuroprotection, Anthocyanins, Sulforaphane*