

## Proximate constituents and L-3,4-dihydroxyphenylalanine levels in *Mucuna pruriens* seed powder and baked biscuits therefrom

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Seeds of *Mucuna pruriens* (*Mp*), a leguminous plant, are known for their high content of L-3,4-dihydroxyphenylalanine (L-DOPA) and are used in the management of Parkinson's disease (PD) in Indian traditional medicine. These seeds also contain valuable nutrients and phytochemicals with potential health benefits. This study aims to evaluate the physicochemical, phytochemical, nutritional, and certain neuroactive constituents of *Mp* seed powder and to assess its application in neuro-nutraceutical development. Dried *Mp* seed powder and baked biscuits prepared using the dough made of this seed powder are chemically analysed for contents of moisture, ash, water- or alcohol-soluble extract, phytochemical constituents (phenols and tannins), and nutritional value compounds (protein, fat, fibre, carbohydrate, sources of bioenergy). L-DOPA contents in both *Mp* powder and *Mp* biscuits were quantified using a high-performance liquid chromatography-electrochemical detection method. *Mp* powder is rich in proteins, fibres, and phytochemicals, and contains a significant amount of L-DOPA, the precursor of the neurotransmitter dopamine. Upon baking, the biscuits retained L-DOPA, albeit with a 55% reduction during thermal processing. The presence of appropriate bioactive/pharmaceutical compounds, such as phenols and tannins, was confirmed by phytochemical screening. *Mp* seed powder is a promising functional ingredient for the development of nutraceutical foods. The successful retention of L-DOPA in baked biscuits suggests its potential application as a medicinal food in the management of Parkinsonian syndromes in PD patients. Further clinical validation is needed to confirm L-DOPA bioavailability for therapeutic relevance, which is in progress.

**Keywords:** Ayurveda, Biscuit formulation, L-3,4-Dihydroxyphenylalanine, *Mucuna pruriens*, Neuronutraceuticals, Parkinson's disease, Seed-powder

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