



## Comparative genetic analysis of trichome-less and normal pod genotypes of *Mucuna pruriens* (Fabaceae)

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**ABSTRACT.** Velvet bean (*Mucuna pruriens*) seeds contain the catecholic amino acid L-DoPA (L-3,4-dihydroxyphenylalanine), which is a neurotransmitter precursor and used for the treatment of Parkinson's disease and mental disorders. The great demand for L-DoPA is largely met by the pharmaceutical industry through extraction of the compound from wild populations of this plant; commercial exploitation of this compound is hampered because of its limited availability. The trichomes present on the pods can cause severe itching, blisters and dermatitis, discouraging cultivation. We screened genetic stocks of velvet bean for the trichome-less trait, along with high seed yield and L-DoPA content. The highest yielding trichome-less elite strain was selected and identified on the basis of a PCR-based DNA fingerprinting method

(RAPD), using deca-nucleotide primers. A genetic similarity index matrix was obtained through multivariate analysis using Nei and Li's coefficient. The similarity coefficients were used to generate a tree for cluster analysis using the UPGMA method. Analysis of amplification spectra of 408 bands obtained with 56 primers allowed us to distinguish a trichome-less elite strain of *M. pruriens*.

**Key words:** *Mucuna pruriens*; Velvet bean; L-DoPA; RAPD profiling; Genetic divergence; Molecular polymorphism