

Diversity analysis and fingerprinting of mung bean (*Vigna radiata* L. Wilczek) Advanced Breeding Lines using SSR markers

A Sheena Sabatina, Lal Ahamed M, J V Ramana and N Harisatyanarayana

Department of Molecular Biology and Biotechnology,
Advanced Post Graduate Centre, Lam, Guntur, A.P.

ABSTRACT

Suitability of 50 SSR markers to characterize and fingerprint thirty mung bean advanced breeding lines was studied. Among the fifty primers, forty-four primers produced clear banding pattern, of which only nine primers, CEDG 008, CEDG 015, CEDG 056, CEDG 068, CEDG-092, GLLC 108, PBALC 13, PBALC 217 and VrSSR-14, produced polymorphic bands. Across the genotypes, these primers produced 236 bands, with sizes ranging from 160 to 200 bp. Primer CEDG-015 had low PIC value, primers, CEDG- 056, CEDG- 068, CEDG- 092, PBALC-013 and PBALC- 217 had moderate and primers CEDG-008, GLLC- 108 and Vr SSR-014 had high PIC values, revealing their discriminatory powers. The highest similarity coefficient value (0.33) was observed between the genotypes, LGG-705 and LGG- 688, revealing that these genotypes are highly similar in their genetic makeup compared to others. Simulated DNA fingerprinting profiles showed that each primer produced a reproducible band but there were few exceptions where two bands were observed for a primer (CEDG056 and CEDG092) and for few primers absence of bands were observed (CEDG056, CEDG068, GLLC108 and VrSSR14) indicating their usefulness in differentiating the genotypes. A larger germplasm need to be screened using more polymorphic SSR markers, ensuring a uniform coverage of the genome, to ascertain the exact genetic diversity and for precise fingerprinting.

Keywords: *Germplasm characterization, Green gram, Legumes, Microsatellite makers, Polymorphism and Pulses.*