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Application of ISSR markers for verification of F_1 hybrids in mungbean (*Vigna radiata*)

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ABSTRACT. Mungbean improvement via hybridization requires the identification of true F_1 hybrids from controlled crosses before further generations of selfing/crossing and selection. We utilized inter-simple sequence repeat (ISSR) markers for identifying putative F_1 hybrids from six cross combinations whose morphological characteristics were very similar to those of their respective female parents and could not be visually discriminated from the self-pollinated progeny. Based on 10 ISSR primers, polymorphisms were found between female and male parents of all six cross combinations. The highest value of genetic differentiation (21.4%) was found between male and female parents of the SUT3 x M5-1 cross. These 10 ISSR primers gave 2.8-25.0% polymorphism between male and female parents, with a mean of 12.1%, and 0-13.0% polymorphism between F_1 hybrid and female parents, with a mean of 4.8%. F_1 hybrids of all six cross combinations could be differentiated from the self-pollinated progeny of their female parents by using only either ISSR 841 or 857 primers, together with the ISSR 835 primer. We conclude that ISSR markers are useful and efficient for identifying mungbean F_1 hybrids in controlled crosses

from different genetic background.

Key words: Inter-simple sequence repeat; Molecular marker; Hybrid identification; Polymorphism

