

Development of SCAR markers in date palm (*Phoenix dactylifera* L.) and jojoba (*Simmondsia chinensis* Link Schneider) for early sex identification

Pushpa Kharb

CCS Haryana Agricultural University, India

The genetic control and mechanisms leading to sex differentiation in date palm (*Phoenix dactylifera* L.) and jojoba (*Simmondsia chinensis* Link Schneider) are not known. Genomic DNA from a total of 45 genotypes (25 female and 20 male) of date palm was subjected to PCR amplification using 100 RAPD and 104 ISSR primers. Only one RAPD primer OPA-02 amplified a fragment of 1.0 kb in all the male genotypes. This male specific fragment was sequenced and the sequence was deposited in GenBank (accession no. JN123357). SCAR dpF (forward) and SCAR dpR (reverse) primers were designed based on this male-specific sequence. This primer pair amplified a 406 bp fragment in both female and male genotypes and a unique allele of 354 bp in only male genotypes (patent filed; application no. 1513/DEL/2010 dated 29/6/10). The SCAR marker was further validated using 25 female and 10 male date palm plants belonging to different varieties. Similarly in jojoba, an ISSR marker (already identified by our group) amplifying a unique allele of 1100 bp in only male genotypes was first confirmed using 10 male and 10 female genotypes. This male-specific fragment was cloned and sequenced. The sequence was deposited in the GenBank (accession no. HQ166029). Primers SCAR scF (forward) and SCAR scR (reverse) was designed based on this sequence amplified a unique allele of 1000 bp in male genotypes only (patent Application no. 1563/DEL/2010 dated 02/7/10). The SCAR marker was further validated using five male and five female jojoba genotypes which was not used earlier.

Biography

Pushpa Kharb is presently a Professor in the Department of Molecular Biology, Biotechnology & Bioinformatics, CCSHAU, Hisar. She served as Director (Technical), Centre for Plant Biotechnology for three years. She completed her MSc and PhD in Genetics from CCSHAU, Hisar. She was a Rockefeller Foundation Post-doctoral Fellow for two years at Texas A & M University, USA. She has been granted two patents so far out of seven patents filed. She is a recipient of ICAR sponsored Best Teacher award. She is a member of several academic societies and has published more than 50 research papers in national and international journals.

pkharbhau@gmail.com

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