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Identification of polymorphic microsatellite markers in oil palm

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The oil palm (*Elaeis guineensis* Jacq.) comparatively a new crop to India, is the most productive oil crop in the world, yielding an average of 4 to 6 tons of oil per ha per year. The narrowness of gene pool is considered as a major obstacle to increase the productivity as the oil palm planting materials are presently derived from an extremely narrow genetic base. The inadequacy of genetic variability necessitates the requirement for germplasm material of specific characteristics for incorporation into existing breeding programs. Among various molecular biology techniques, microsatellite markers are used extensively to carry out studies on genetic diversity, varietal identification, pedigree analysis, genome mapping and Quantitative Trait Locus (QTL) detection for molecular marker assisted selection in oil palm. Simple Sequence Repeats (SSRs) have great advantage over other markers such as isozymes, Random Amplified Polymorphic DNA (RAPD), Restriction Fragment Length Polymorphism (RFLP), Amplified Fragment Length Polymorphism (AFLP) with highest polymorphism information content (PIC) and high distribution of loci within the genome. Additionally, they are co-dominant and highly reproducible through PCR. This study assessed 52 SSRs in eight oil palm types representing dura, tenera and pisifera in order to find polymorphic SSRs which could possibly be used for ascertaining the genetic differences and or similarities among them. The following 11 SSRs namely mEgCIR3750, mEgCIR0905, mEgCIR3260, mEgCIR3301, mEgCIR3698, mEgCIR3439, mEgCIR3716, mEgCIR3788, mEgCIR1713, mEgCIR2380 and mEgCIR3402 were found to be polymorphic which will be very useful in various applications of oil palm breeding programs like genetic diversity studies, linkage map and QTL analysis.

Biography

Ramajayam D has completed his PhD in Pomology from ICAR-Indian Agricultural Research Institute, New Delhi and a foreign deputation training on Marker Assisted Selection (MAS) from West Virginia State University, USA. He is the Senior Scientist (Fruit Science) of ICAR-Indian Institute of Oil Palm Research under Indian Council of Agricultural Research, New Delhi. He has published more than 12 papers in reputed journals and currently working on germplasm conservation, genetic enhancement, tissue culture and marker assisted selection in oil palm. He has life membership in 9 reputed scientific societies including the life membership from The International Society for Oil Palm Breeders (ISOPB), Malaysia.

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