

Development and Validation of Polymorphic Microsatellite Markers in Sesame (*Sesamum indicum* L.)

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Abstract—Sesame (*Sesamum indicum* L.), most ancient and important oilseed crop with rich source of protein, high-quality seed oil and many antioxidant properties. Microsatellite markers are used widely in development of different crops. Efforts to strengthen the sesame-specific micro satellite marker have been initiated in the recent past; however, the available number of microsatellite markers is still not sufficient for the development of high-resolution genetic linkage maps for important agronomic traits and there is a need to increase the number of informative DNA markers in sesame. In the present study, we developed 235 microsatellite markers by employing the mining expressed sequence tags of the NCBI database. This new set of microsatellite markers was characterized and screened for genetic diversity in an array of 50 sesame genotypes from different eco-geographical region of the world. Among the 235 markers used in the analysis, 33 (14%) showed polymorphism with a total of 226 alleles identified across genotypes. The number of alleles ranged from 3 to 6 with an average value of 4.634 per locus. The allele size ranged widely (100–510 bp) among the primer pairs. Polymorphic information content estimates ranged from 0.36 to 0.81, average being 0.57. These microsatellite markers will be very useful in diversity analysis among a large germplasm collection of sesame. At molecular level genotypes were grouped into four clusters. Highest GD was observed between genotypes, TKG-355 and IC-204063 as well Savitri and EC-334973(38). Therefore, crossing between these parents would produce more desirable segregants during hybridization programmes.
