

Identification and genetic purity testing of ANGRAU cotton F1 hybrids using SSR markers

Sambasiva Rao Palaparthy, Aruna P, Anuradha G and Keshavulu K

Institute of Biotechnology-Hyderabad, India

Microsatellite markers were used for fingerprinting of hybrids, assessing variation within parental lines and testing the genetic purity of hybrids as they offer a faster and reliable technique for assessing the genotype of a plant. The investigation pertaining to the hybrid identification of cotton using SSR markers was carried out on four F1 hybrids and their parents at Institute of Biotechnology, ANGRAU during 2011-12. Sixteen SSR markers were employed for purity analysis of 4 cotton hybrids (NDLHH 240, WGHH 2, NSPHH 5 and LAHH 4) and their parents (NA1325 x MCU 5, NA 1678 x NA 4084, NA 1325 x L604 and AB 6 x M2). On amplification of genomic DNA, 4 primers expressed polymorphism between the male parents and the female parents. The hybrids expressed clear codominance of the alleles of its respective male and female parental alleles. The microsatellite marker BNL 3449 amplified alleles specific to differentiate parents of NSPHH 5 likewise BNL 3255 primer for NDLHH 240, BNL 1317 for WGHH 2 and JESPR 148 primer for LAHH 4 hybrids and their respective parents. Based on the microsatellite banding pattern of parents, the hybrids could be clearly identified. The fingerprinting data were analyzed to create molecular IDs needed for genotype protection through IPR. The findings of this study revealed that the SSR markers are excellent genomic tools for parentage confirmation and hybridity determination (due to its repeatability, high efficiency and simplicity).

sampalrao@gmail.com