



Characterization and development of chloroplast microsatellite markers for *Gossypium hirsutum*, and cross-species amplification in other *Gossypium* species

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ABSTRACT. Cotton is an important economic crop worldwide; its fiber, commonly known as cotton lint, is the main natural source for the textile industry. Sixty chloroplast microsatellites were identified and characterized from the complete sequence of the *Gossypium hirsutum* chloroplast genome using a bioinformatic approach. Twenty chloroplast microsatellite loci were polymorphic in the 66 *Gossypium* germplasm accessions. A total of 85 alleles were detected, with allele numbers varying from 2-7 per locus. Polymorphism information content varied from 0.02-0.66, with a mean of 0.48. Additionally, transferability of the 20 polymorphic chloroplast microsatellite primers was evaluated in other 31 *Gossypium* species. Sixteen markers were successfully amplified across all species tested, while the remaining 4 markers cross-amplified in most species tested. These polymorphic chloroplast microsatellite markers may be useful tool for studies of individual

identification, genetic diversity, evolution, conservation genetics, and molecular breeding in *Gossypium*.

Key words: Chloroplast microsatellite; *Gossypium*; Polymorphism; Transferability