

Molecular Markers in Improvement of Fiber Quality Traits in Cotton

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Cotton is the worlds leading natural fiber crop, and it is the cornerstone of textile industries worldwide. The cotton industry is confronted with problems in cost of production and requirements for high quality in the product. It is an industry in which marketing is based on measurable quality factors and where technological changes are being implemented rapidly and constantly. So the breeders have to constantly breed cotton varieties to suit the requirements of the textile industry. Improving fiber quality through conventional breeding procedures has been beset with high cost, long duration, and low selection efficiency. Other factors hindering quality improvement is the genetic complexity associated with fiber quality and associated traits. The genetic enhancement of fiber traits has been facilitated by supplementing conventional breeding procedures with molecular marker technology. Now several thousands of SSR markers available in cotton microsatellite database have been utilized along with RAPD and SRAP markers to construct intraspecific (intra-hirsutum) and interspecific (*Gossypium hirsutum* × *G. barbadense*) genetic maps. These high density genetic maps have aided in tagging of fiber QTLs. But only a few QTLs were found to be stable and common across populations due to non-replicated experiments and difficulty in assignment of linkage groups. To identify stable QTLs we need to integrate different maps of interspecific populations and for this it is important to work with a fixed population.