CONFIRMATION AND VALIDATION OF FIBER STRENGTH QTL CLUSTER ON CHROMOSOME 24 OF UPLAND COTTON

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Abstract

Fiber strength is one of the important fiber quality traits of cotton that not only influence the efficiency of yarn manufacturing process but also the quality of the final fabric. Recent increase in demand for cotton with higher fiber strength, both in domestic as well as international markets, have led to several studies aimed at searching for regions of cotton genome controlling or influencing fiber strength trait. In this study we investigate a QTL rich region on chromosome 24 of an upland cotton germplasm line 7235, which has previously been proposed as a candidate for Marker Assisted Selection (MAS) to improve fiber strength of the U.S. cotton. Two genetically distinct mapping populations were developed by crossing line 7235 with two Sealand lines (SL-542 & SL-883). Linkage analysis and QTL mapping results confirmed the existence of fiber strength QTL cluster on chromosome 24. Consistency in expression of these QTLs in different genetic backgrounds validates their use in MAS.