

## **MOLECULAR MAPPING OF NATURAL LEAF DEFOLIATION LOCI OF COTTON USING SSR MARKERS**

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### **Abstract**

For the past century, being the main cotton fiber supplier for the entire Former Soviet Union has caused many ecological problems in Uzbekistan due to extensive use of chemicals in cotton growing season, in particular chemical defoliants. Hence, to develop natural leaf defoliating varieties was one of the important targets of the cotton breeding programs in the Republic. Such a natural leaf defoliating line collection was developed using conventional breeding efforts, crossing wild diploid cottons with tetraploid varieties with consequent doubling chromosome numbers and selecting rare unique naturally early leaf defoliating tetraploids from the hexaploid cotton population. One of such examples is "Listopad Belyi" (white leaf defoliant) with very early leaf defoliating trait, which was developed from the cross between *G. trilobum* x *G. harknesii* and *G. hirsutum*. L.

The main goal of our work was molecular-mapping of early natural leaf defoliation loci of cotton using microsatellite markers from JESPR collection. Two parental lines with alternative traits – AN-Bayaut-2 and Listopad Belyi, and their 68 F5 progeny representing mostly extreme phenotypic classes have been chosen for mapping purposes. We examined 140 microsatellite primers from JESPR collection.

Phenotypic data correlated with genotypes using MapQTL software. Four of SSRs showed reliable polymorphism between parents of which two - JESPR-178 and JESPR-13 showed significant association with natural leaf defoliation loci in Kruskal-Wallis test (KW=12.935 and 10.134 respectively) of the mapping population. Further, JESPR-178 showed significant linkage to leaf defoliation QTL in interval mapping with a LOD score of 3.46. This microsatellite marker can readily be used in introgressing very important natural leaf defoliation QTL into elite cotton varieties through MAS programs.