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## Characterization of novel QTLs associated with sugarcane smut resistance and yield traits

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Sugarcane yield depends upon various agro-morphological traits, viz., stalk number, cane height, cane girth, sugar recovery and smut resistance. Detection of Quantitative Traits Loci (QTLs) linked with these traits could greatly help in marker-assisted selection of sugarcane lines in various breeding programs. Structure and TASSEL software based integration of genotypic and phenotypic data of 103 sugarcane genotypes resulted in the identification of eighty-seven (87) highly associated alleles ( $p \leq 0.05$ ), 34 with whip smut resistance; 27 with sugar recovery; 13 with cane weight and 20 with each of cane height and girth. The phenotypic variance ( $R^2$ -values) explained by the linked alleles ranged 2.81-23.46% for cane height, 1.75-12.8% for cane girth, 2.9-14.34% of cane weight, 2.67-22.5% for sugar recovery and 3.1-24.6% for whip smut. The varying proportions of phenotypic variance explained by the associated alleles indicate that these traits may be controlled by the additive effect of multiple genes. These are in fact the genuine quantitative traits. Moreover, the alleles showing maximum degree of association for cane height (52-121), cane girth (82-184), sugar recovery (51-131), cane weight and smut resistance (51-145 & 51-146) could best be selected for marker assisted selection of sugarcane lines for these traits.

### Biography

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