

Identification of quantitative trait loci for salinity tolerance to rice in an advanced backcross population derived from two indica varieties, Boilam and BRRI Dhan 27.

*HB Shozib, MJ Thomson, MS Rahman, MA Salam, AM Ismail and ZI Seraj**

** Department of Biochemistry and Molecular Biology, University of Dhaka, Dhaka-1000, Bangladesh, zebai@univdhaka.edu; www.univdhaka.edu*

Boilam is photoperiod insensitive and early maturing, unlike the salt tolerant rice landrace rice, Pokkali. Pokkali also shows poor heritability of salt tolerance traits in innumerable breeding efforts in SE Asia. This investigation was designed to identify novel Quantitative Trait Loci (QTL) linked to salt tolerance traits of a Bangladeshi Aus landrace, Boilam extensively grown in the mid South for possible introgression into modern rice varieties. BC₂F₂ progenies from a cross between Boilam and farmer popular rice variety BR27 were developed. A total of 200 tolerant and sensitive BC₂F₂ seedlings were genotyped by 108 SSR markers across the 12 rice chromosomes. QTLs were identified using single-point analysis and interval mapping using QGene. A total of 4 QTLs were detected on chromosome 1, 9, and 12 using LOD > 3 as threshold. The range of R value of the 4 QTLs was 19.57% – 25.81 %. Salt tolerant BC₂F₃ having the background genotype of BR27 will be developed further for release or use as parents in breeding programmes with the help of the markers-linked to the salt tolerance QTLs. QTL analysis for reproductive stage salt tolerance with 200 more BC₂F₂ is now being conducted to establish Boilam as a donor of novel salt tolerance traits.

Related GCP project—SP3 Commissioned G4008.16: Speeding the development of salt tolerant rice varieties through Marker assisted selection and their dissemination in salt affected areas of Bangladesh.

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