

SCREENING FOR *osr40c1* GENE (A NOVEL ABA RESPONSIVE, SALINITY INDUCED AND ROOT SPECIFIC GENE) IN LOCAL RICE GERMPLASM

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Salinity is one of the major abiotic stresses which limits the rice production. Therefore, development of salinity tolerant rice varieties and further development of tolerance is the most viable solution. Gene manipulation is one means that could be used to improve stress tolerance in crops in order to overcome these environmental limitations by reprogramming the expression of endogenous genes, thus increasing yields. Therefore, this study was carried out to screen a few known salinity tolerant rice (*Oryza sativa* L.) varieties and newly developed salinity tolerant lines by Rice Research and Development Institute at Bathalagoda for the presence of *osr40c1* gene employing a PCR amplification screening method. Previously *osr40c1* gene was identified based on the abscisic acid and salt responsive rice genes by following a NCBI (National Center for Biotechnology Information) search and found to be a novel abscisic acid responsive, salinity induced and root specific gene in rice. The cDNA sequence of *osr40c1* was blast against *Oryza sativa* Indica genomic sequence in the NCBI and the best homologous hit was obtained which aligned with *osr40c1* cDNA. A 600 nucleotides containing region was selected as promoter, where 550 nucleotide of upstream 5' region from transcription start site and 50 nucleotides of down stream transcription start site. Forward and reverse primers were designed by using genomatix software. PCR was carried out for amplification of the promoter region with newly designed primer pair (O.SAT). Out of three salinity tolerant rice varieties pokkali yielded the 600bp DNA band and out of the thirteen salinity tolerant lines, line number 16-107 also contained the 600bp *osr40c1* promoter region. This DNA band was absent in all other salinity tolerant varieties, lines and susceptible varieties. The results indicate that *osr40c1* gene is present in local

Biology

rice germplasm. However, not all the salinity tolerant varieties and lines possessed this gene. But there is a positive correlation with salinity tolerance and *osr40c1* gene for pokkali.

Key words: *Oryza sativa*, *osr40c1* gene, Salinity tolerance, Screening