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Identification of Key Genes Involved in Heat Stress in Aegilops Speltoides and Triticum aestivum using RNA-Seq Data Analysis

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Abstract

Introduction

Aegilops speltoides (2n) is a progenitor of modern wheat, and is therefore a useful model for the study of heat stress genes as it is resistant to heat stress, we constructed genome-wide transcriptomes of *Triticum aestivum* (accession c273) and the wild wheat *Aestivum speltoides* (accession 3809) by generating *de novo* assemblies of RNA-Seq data derived from both the species.

Body:

The *de novo* transcriptome assemblies of c273 and 3809 represent 103,339 and 135,793 transcripts, respectively. Assembled transcripts were annotated with a significant Blastx against nr, Pfam and GO. Longest isoforms were identified using trans decoder and these longest orf analysis were used to identify 7,785 single copy orthologues shared across the two species. We identified heat stress genes in c273 and 3809 represent 534and 528 using annotation results and total 54 orthologs related to heat stress genes are identified.

Conclusions:

De novo transcriptome assemblies of two accessions of the wheat provide new empirical transcriptome references for studying different heat stress genes. The identified heat stress key genes in our analysis provide additional resources for the development of molecular markers.

Biography

Jaimeet kaur is pursuing PhD in the Department of Biotechnology, Chandigarh University. She has Masters and Mphil in Bioinformatics. She has experience in NGS based Transcrioptome analysis. Practical experience in rust pathogen identification in wheat. Experience in DNA and RNA isolation, quantity and quality assessments in plants. Experience in functional gene identification and characterization, including the use and application of software pipelines for gene expression analysis and DNA marker development using NGS RNA-sequencing data. Developed two database i.e Heat stress genes in wheat and Comparative SSR marker analysis in Rice using JAVA, R, PERL, HTML, PHP, and MySQL. She has published more than 5 papers in reputed journals.

Citation

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