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Nurul Iffah Binti Baharom was born on 2nd July 1997 in Ampang, Selangor. She received her early education in Ampang before migrating to Seremban, Negeri Sembilan where she now resides. Currently, she is a final year student in University of Malaya, majors in Genetics with a current CGPA of 3.64. Genetic studies have always been her passion ever since she was in high school. Her interest develops even further in her undergraduate years, particularly in plant molecular biology. As an undergraduate student majors in Genetics, she has received practical skills not only in molecular biology, but also other techniques such as plant tissue culture and bioinformatics. She has completed her industrial training at the Molecular Biology Laboratory, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia. Aside from being a JPA scholar, she has received Dean's List Award (GPA > 3.7) for two semesters.

ABSTRACT

Quantitating the Expression of *Zirfb2* Gene in *Shorea leprosula* during General Flowering

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Drought is hypothesized as one of the proximate cues that trigger general flowering. Drought responsive element binding protein 2 (DREB2) is a transcription factor that interacts with a cis-acting dehydration responsive-element/ C repeat (DRE/CRT), which is expressed in response to drought in *Arabidopsis*. In a transcriptome analysis of a general flowering species, *Shorea curtisii*, *DREB2* gene was upregulated during flowering time. Thus, I hypothesized that *DREB2* would be upregulated in a sister species, *Shorea leprosula*, prior to general flowering. To validate this, I designed primers for the homologue of DREB2 based on a transcript sequence of *S. curtisii*. Using the primers designed, I have isolated and sequenced a 1024 bp fragment from *S. curtisii* and *S. leprosula*. These sequences were later found to be clustered in the A-2 group of DREB protein in a phylogenetic tree, inferring that the sequences code for homologues of DREB2. The putative DREB2 transcripts of *S. curtisii* and *S. leprosula* showed 98% identity, differing in 10 amino acids. Next, I quantitated the expression of this gene in *S. leprosula* before and during a flowering season in 2014 and compare the expression profile to that of *S. curtisii*. The quantitative PCR results showed upregulation of DREB2 before flowering time, indicating that the expression pattern of *DREB2* gene is conserved between the two Shore species. The expression profile also suggested the involvement of *DREB2* gene in floral initiation of *S. leprosula*. However, the expression profiles were not consistent among replicates, thus require validation with more samples.