

**DETECTION OF WATER STRESS-INDUCED GENE IN
MAIZE UNDER DROUGHT STRESS CONDITION**

LUM MOK SAM



UMS
UNIVERSITI MALAYSIA SABAH

ABSTRACT

Plant growth and productivity are greatly affected by water stress. Maize is an important cash crop in Malaysia where it often suffers from drought stress. This study focused on determines the water stress-induced gene in maize under drought stress condition in Sabah. The young maize leaves which at the weight range of 100 ± 5 mg were collected for total RNA isolation process and the RNA yield range is 50-200 μ g. There were undetectable amplified band in PCR process for Samples 1 and 2. While, a specific band located approximate 585 bp was amplified by using AHLEA primer set for Samples 3, 4 and 5. Sample 5 shown most clearance of amplified band which was further underwent purification process. This band was eluted and cloned into pGEM[®]-T Easy Vector. There were 10 white colonies and 11 light blue colonies were formed on LB plate supplemented with Ampicillin/ X-Gal/ IPTG. After miniprep isolation, these plasmids were digested with EcoRI. Two different bands which located at 400 bp and 230 bp were formed by EcoRI. These result showed that there is stress-induced gene in maize under drought stress condition.

ABSTRAK

Pertumbuhan dan produktiviti tanaman amat dipengaruhi oleh stres air. Jagung merupakan tanaman kontan yang penting di Malaysia di mana ia sering mengalami stres kemarau. Kajian ini fokus pada kehadiran gen stress-induksi air pada jagung dalam keadaan stres kemarau di Sabah. Daun jagung muda pada lingkungan berat 100 ± 5 mg dikumpulkan untuk proses isolasi RNA dan hasil RNA adalah dalam lingkungan 50-200 μ g. Tiada jalur diamplifikasi dalam proses PCR pada Sampel 1 dan 2. Manakala, satu jalur spesifik yang terletak pada kira-kira 585 bp diamplifikasi dengan menggunakan set primer AHLEA dengan menggunakan Sampel 3, 4 dan 5. Sampel 5 menunjukkan jalur yang paling jelas dan diteruskan ke proses penulenan. Jalur ini terelusi dan diklon ke dalam pGEM[®]-T Easy Vector. Sebanyak 10 koloni putih dan 11 koloni biru muda dibentuk di piring LB yang dilengkapi dengan Ampicillin/ X-Gal/ IPTG. Selepas isolasi miniprep, plasmid ini dipotong dengan EcoRI. Dua jalur berbeza saiz yang terletak di 400 bp dan 230 bp dibentuk. Keputusan ini menunjukkan bahawa terdapat gen stres-induksi pada jagung dalam keadaan stres kemarau.

