[illegible] OF SEA WATER FOR GROWTH AND
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2008

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MANIPULATION OF SEAWATER FOR GROWTH AND PROLIFERATION OF SUGARCANE (*SACCHARUM OFFICINARUM*)

By

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JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: MANIPULATION OF SEAWATER FOR GROWTH AND PROLIFERATION OF SUGARCANE (*Saccharum officinarum*) oleh Fatmawati bt Hamad @ Ahmad Lutfi, no. matrik: UK 8533 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Biologi), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREVATIONS

%	Percentage
^{0}C	Degree Celsius
Cm	Centimeter
EDTA	Ethylenediaminetetracetic acid
g	Gram
µg	Microgram
µL	Microliter
mg	Miligram
mL	Mililiter
MS	Murashige and Skoog (1962) media
ppt	Part per trillion
rpm	Rotation per minute
sec	Second
Tris-HCl	Tris [Hydroxymethyl] aminomethane hydrochloride
v / v	Volume/volume
w / v	Weight / volume

ABSTRACT

An experiment on manipulating the seawater as sugarcane (*Saccharum officinarum* L.) culture media was design. One month-old of sugarcane plantlets were cultured in MS media added with seawater at 3 to 12ppt. Fresh weight was increased in the first week, then was reduced after week 2 until the end of the experiment of week 4. The proliferation was not significantly different compared to the control. Protein quantities were decreased with the increasing of salinity by 0.02-folds after four weeks cultivation. Variances analysis shown significant differences ($p<0.05$) in fresh weight and protein quantitation but not in the proliferation. The adverse effects of seawater were chlorosis, tip burning, arrested growth, thinning of stem and reduced foliage. Reduction in these parameters was believed caused by the toxicity of NaCl accumulated in the media. As the conclusion, the seawater was not suitable for sugarcane culture media.

MANIPULASI AIR LAUT UNTUK PERTUMBUHAN DAN PERCAMBAHAN TEBU (*SACCHARUM OFFICINARUM*)

ABSTRAK

Satu eksperimen memanipulasi air laut sebagai media kultur tebu (*Saccharum officinarum* L.) telah direka. Benih tebu berusia sebulan telah dikultur dalam media MS yang ditambah air laut berkemasinan 3 hingga 12ppt. Berat segar telah bertambah pada minggu pertama, kemudian merosot selepas minggu kedua hingga akhir eksperimen pada minggu keempat. Percambahan tidak berbeza ketara dengan kawalan. Kuantiti protein merosot 0.22 kali ganda dengan pertambahan kemasinan selepas empat minggu pembiakan. Analisa varian menunjukkan beza ketara ($p<0.05$) pada berat segar dan kuantit protein tetapi tidak pada percambahan. Kesan sampingan air laut adalah klorosis, pucuk melecur, pertumbuhan terbantut, pengecilan batang dan pengurangan pucuk baru terhasil. Pengurangan parameter ini dipercayai berpunca daripada keracunan NaCl yang berlebihan dalam media. Sebagai kesimpulan, air laut tidak sesuai dijadikan media kultur tebu.