

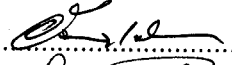
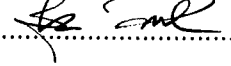
## 3971986123 :MAJOR INTERDEPARTMENT OF ENVIRONMENTAL SCIENCE

KEY WORD: CHLORELLA/ CARBON DIOXIDE/ pH/ NITRATE/ PHOSPHATE

SAMORNLUK CHAMCHAENG : THESIS TITLE. OPTIMAL CONDITIONS FOR CARBON DIOXIDE UTILIZATION BY MICROALGAE.THESIS ADVISOR : ASST. PROF. AJCHARAPORN PIUMSOMBOON, Ph.D., THESIS COADVISOR : ASST. PROF. SUMATE TANTRATIAN Ph.D., 92 pp. ISBN 974-334-257-5

*Chlorella* sp. was cultured in NS III media under the following conditions: 3,000 lux, 30 degree celcius, 12-12 hours of light-dark period and 6.6 of pH media. The specific growth rate was  $1.90 \pm 0.29$  per day. The low tolerant pH limit is less than 4.60. The specific growth rate in media with different value; 4.70, 5.10, 5.60, 6.10 and 6.60, are not significant difference ( $p=0.05$ ).

The specific growth rate in media with varies concentration of nitrate and phosphate was highest in the media with nitrate concentration 10.00 millimol/l and phosphate concentration 1.69 millimol/l. The efficiency of carbon dioxide reduction in the media with 5.00 g/l dry ice addition was 95.35%. The rate of carbon biomass production can be expressed as carbon biomass (mg/l) =  $4.78 (CO_{2(aq)})^2 - 71.89CO_{2(aq)} + 296.54$  ( $r^2 = 0.95$ ). *Chlorella* in media with dry ice 10 g/l showed the highest efficiency to change carbon dioxide to biomass.

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