

Thesis title	Baseline for the cultivation of native oil rich alga (<u>Botryococcus braunii</u>), as the potential source of the biocrude oil productions in Thailand
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Abstract

The samples of Botryococcus braunii from Prince of Songkhla University reservoir were used in determining biocrude oil content and isolation to make unialgal culture for study the possibility in cultivation under indoor and outdoor conditions. Biocrude oil content was determined as 20% of dry weight; botryococcocene and isobotryococoeene were identified as the major components. The three different medium under natural and control conditions induced zoospore formation which developed to the large green cell in isolation by micropipette washing technique. The cell grew successfully under indoor and outdoor conditions. The four different media were used under the laboratory control condition and Kratz and Myers media showed the fastest growth with mean biomass doubling time of 0.65 day and maximum biocrude oil content of 11.04% of dry weight on the late of phase of declining relative growth

which took about 17 days for cultivation. The same series of media as in indoor cultivation were used under outdoor cultivation by modified rocking tray. Kratz and Myers media also exhibited the lowest mean biomass doubling time of 1.18 days and the highest biocrude oil content of 13.85% of dry weight within 9 days of cultivation. In contrast, the small amount of biocrude oil content of 0.5% was obtained from the cultivation in paddle wheel basin, using only Kratz and Myers media, under outdoor condition with the lowest mean biomass doubling time of 3.7 days. Crude protein content was also determined in case of obtaining the large green cell and the highest crude protein content of 55.57% of dry weight was obtained from the cultivation by paddle wheel basin at the fifth day of cultivation where as the indoor cultivation and outdoor cultivation by modified rocking tray in NS III media showed the lower contents of 49.67% of dry weight at the fourth day of cultivation and 40.23% of dry weight at the second day of cultivation respectively. Therefore, the large green cell exhibited both of the maximum productions which depended on media, cultivation period and culturing unit.