CAROTENOIDS FROM TROPICAL MICROALGAE, *Dunaliella* sp.: DETERMINATION OF THE EFFECTS OF CAROTENOIDS ON KNOWN PATHOGENS

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Lihat sebelah

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By

NurAisyah Bt Nordin

Research Project submitted in partial fulfillment of
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KAROTENOID DARIPADA *Dunaliella* sp. TROPIKA; PENENTUAN KESAN KAROTENOID TERHADAP PATOGEN YANG DIKENAL PASTI

Oleh

NurAisyah Bt Nordin

Laporan Penyelidikan ini diserahkan untuk memenuhi sebahagian keperluan bagi
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DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:

Carotenoids from Tropical Microalgae, *Dunaliella* sp.: Determination of the Effects of Carotenoids on known Pathogens by **NurAisyah Nordin** Matric No. **UK17065** have been examined and all errors identified have been corrected. This report submitted to the Department of Marine Science and as a partial fulfillment toward obtaining the Degree of Marine Biology, Faculty of Maritime Study and Marine Science, University Malaysia Terengganu, Terengganu, Malaysia.

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ABSTRACT

The microalgae of interest on this project are *Dunaliella* sp. and the pigment of interest to be study on is the carotenoid pigments which happen to be present in this microalgae and other plant. The microalgae is a marine organisms which inhibiting the open ocean, so it is a big interest to study the possibility of the compound called carotenoid in this species either it have the suitable properties to use for human benefit. This compound is only one of three type of pigment that exists in plant. But instead of just a mere pigment it plays a big role to prevent the cell from damage due to stress, the present of this compound help in capturing light of lower wavelength for production of food for the need of the cell. The carotenoid is extracted from a volume of microalgae which is introduce to stress in order to check weather or not a stress can make an algae produces a lot more carotenoid. The extracted carotenoid will then be tested of a volume that is able give LC50 on cancer cell. This is important so that one will know the suitable amount of crude that should be used. The crude will then be tested its microbial activity against certain disease that been cause by *Echerichia coli*, *Bacillus cereus, Pseudomonas aeruginosa, Salmonella, Klebsiella*. By this study ones will know the propotion of extract that can be used to produce medicine and the microbial properties that it holds.

Karatenoid daripada *Dunaliella* sp Tropika; Penentuan kesan karatenoid terhadap patogen yangdikenal pasti

ABSTRAK

Microalga yang menjadi tumpuan dalam projek ini adalah *Dunaleilla* sp. dan pigmen yang menjadi tumpuan untuk dikaji adalah carotenoid pigmen yang mana hadir dalam microalga ini dan pada semua tumbuhan lain. Microalga yang dikaji ini merupakan hidupan laut, maka ini merupakan peluang yang besar untuk mengkaji kemungkinan pigmen yang hadir dalam species microalga ini mempunyai ciri-ciri yang sesuai untuk digunakan oleh manusia. Pigmen ini merupakan salah satu daripada tiga pigmen yang hadir dalam tumbuhan. Tetapi ianya bukan hanya pigmen biasa tetapi pigmen ini mampu membantu sel daripada rosak apabila berada dalam keadaan tertekan.dan pigment ini mampu menangkap cahaya yang mempunyai gelombang yang lebih redah unutk menghasilkan makanan bagi sel. Carotenoid yang telah di estrak dari microalga yang telah dikenankan stress keatasnya untuk melihat samada stress akan menyebabkan penambahan carotenoid atau tidak. Carotenoid itu kemudiaanya akan di uji sama ada ia mampu melwan sel kanser atau tidak. Ini adalah penting kerana daripada ujian ini maka jumlah crude yang sesuai dapat dietentukan untuk melawan penyakit melalui nilai yang menghasilkan LC50. Crude tersebut kemudianya akan diuji kemampuannya untuk melawan mikrobs seperti *Echerichi coli, Bacillus cereus, Pseudomonas aeruginosa, Salmonella, Klebsiella.* Melalui kajian ini kita akan dapat mengetahui jumlah yang sesuai

untuk digunakan bagi melawan penyakit dan ciri-ciri yang dipunyai oleh bahan ini untuk melawan bacteria.