

3536486 SCBT/M : MAJOR : BIOTECHNOLOGY : M.Sc. (BIOTECHNOLOGY)

KEY WORD : *RHODOTORULA* / DEVELOPMENT / PUFA

CHUN TER KUO : SELECTION AND DEVELOPMENT OF A THAI MARINE YEAST FOR USE AS SHRIMP LARVAL FEED THESIS ADVISOR : TIMOTHY W FLEGEL, Ph.D., VITHAYA MEEVOOTISOM, Ph.D., ATTAWUT IMPOOLSUP, Ph.D., MANOP SUPHANTHARIKA, Ph.D. 119 P.
ISBN 974-589-198-3

Due to continuing growth of the shrimp culture industry, the demand for quality larval feed over conventional feed is increasing. From a total of 24 standard strains and field isolates, *Rhododorus* 5158 was selected for its high biomass and fat content. From cultivation studies with *Rhodotorula* 5158, it was found that a toxic substance(s) accumulated in the growth medium and inhibited the growth of the cells. A dilution of 80% fresh medium was required to overcome this toxic effect. With further study, it was found that a C/N ratio of 84 in the cultivation medium yielded both high biomass and fat. By optimization of the cultivation medium, it was found that commercial grade monosodium glutamate could be used to replace 75% of the yeast extract used in the initial basal medium. One final objective of this study was the incorporation of shrimp essential fatty acids into the yeast cells, and these fatty acids are not naturally produced by the yeast cells. On the other hand, squid oil does contain these essential fatty acids. Therefore, squid oil was supplemented in the cultivation medium to determine whether the yeast cells would accumulate shrimp essential fatty acids from the squid oil supplement. Thin layer chromatography (TLC) and gas chromatographic analysis showed that *Rhodotorula* 5158 was able to uptake the essential fatty acids from squid oil.