

**GROWTH AND SURVIVAL RATE OF *Rhizophora
apiculata* PROPAGULES REPLANTING BY USING
RILEY ENCASEMENT METHOD (REM) AT
KAMPUNG PENGKALAN GELAP, SETIU,
TERENGGANU**

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GROWTH AND SURVIVAL RATE OF
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BY USING RILEY ENCASEMENT METHOD (REM)
AT KAMPUNG PENGKALAN GELAP, SETIU, TERENGGANU

By

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Bachelor of Science (Marine Biology)

Research Report submitted in partial
fulfillment of the requirement for the degree of
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DEPARTMENT OF MARINE SCIENCE
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DECLARATION AND VERIFICATION REPORT
 FINAL YEAR RESEARCH PROJECT

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

*Growth and Survival rate of Rhizophora apiculata Propagules replanting
 by using Riley Encasement Method (REM) at Kg. Pongkalan Gelap, Setiu, Terengganu*

by *Ummu Nur Afifah bt. Zulkifli*, Matric No. *VK22791* have

been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree *Bachelor of science (Marine Biology)*, Faculty of Maritime Studies and Marine Science, University Malaysia Terengganu.

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LIST OF ABBREVIATIONS

REM	-	Riley Encasement Method
CON	-	Conventional method
PVC	-	Poly-vinyl chloride encasement
<i>R.apiculata</i>	-	<i>Rhizophora apiculata</i>
m	-	meter

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AT KAMPUNG PENGKALAN GELAP, SETIU, TERENGGANU

ABSTRACT (IN ENGLISH)

This study is about replanting of *Rhizophora apiculata* propagules by using two different planting methods which are conventional method and Riley Encasement Method (REM). Conventional method is a method which propagule is directly planted into the soil without any encasement while REM is a method of propagules planted within encasement to help the propagule to survive. The objectives of this project are to study and compare the survival and initial growth rate (plumule height and average number of leaves) of *R.apiculata* propagules based on the two methods.

Based on the result, there is significant difference between both methods in initial growth of plumule height and average number of leaves. There are also weaker correlations between the plumule height and average number of leaves with physical parameter. Besides that, there are also high survival rate of propagules in REM compared to conventional method.

In conclusion, by using REM in propagules replanting will help in survival of the propagules besides increased the growth rate compared to using conventional method. It is also suggested that, there should be longer period on study the planting method of propagules in conventional and REM in order to observe the growth rate. Besides that, further study should be done in other species of mangroves to be applied in REM. This will then help in reforestation of mangroves.

**KADAR PERTUMBUHAN DAN KEJAYAAN PROPAGUL *Rhizophora*
apiculata PENANAMAN SEMULA DENGAN MENGGUNAKAN
“RILEY ENCASEMENT METHOD (REM)”
DI KAMPUNG PENGKALAN GELAP, SETIU, TERENGGANU**

ABSTRAK (IN BAHASA MALAYSIA)

Kajian ini mengenai penanaman semula propagul *Rhizophora apiculata* dengan menggunakan dua kaedah tanaman iaitu penanaman secara tradisional dan penanaman menggunakan kaedah Riley Encasement. Penanaman tradisional bermaksud penanaman propagul secara terus ke dalam tanah manakala penanaman kaedah Riley Encasement ialah penanaman propagul dengan disokong batang paip untuk membantu dalam proses kejayaan hidup. Objektif kajian ini adalah untuk mengkaji dan membandingkan kejayaan hidup propagul dan kadar pertumbuhan awal propagul (ketinggian plumul dan purata bilangan daun) bagi spesis *R.apiculata* berdasarkan dua kaedah tersebut.

Berdasarkan keputusan kajian, terdapat perbezaan ketara antara kedua-dua kaedah dalam kadar pertumbuhan awal tinggi plumule dan purata bilangan daun. Terdapat juga lemah korelasi antara ketinggian plumule dan purata bilangan daun dengan parameter fizikal. Selain itu, kadar kejayaan hidup propagul lebih tinggi di dalam REM berbanding kaedah tradisional.

Konklusinya, dengan menggunakan REM dalam penanaman propagul akan membantu dalam keberjayaan hidup propagul di samping meningkatkan kadar pertumbuhan berbanding dengan menggunakan kaedah tradisional. Dalam pada itu, turut dicadangkan supaya waktu kajian dipanjangkan dalam kajian kaedah penanaman propagul di dalam kaedah tradisional dan REM. Malahan, lebih banyak kajian perlu dilaksanakan bagi spesis-spesis lain bakau untuk diaplikasikan di dalam REM. Dengan cara ini dapat membantu perhutanan semula bakau.