



**Soil types affecting survival and growth rate of
broken *Enhalus acoroides* washed on shore.**

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INTRODUCTION



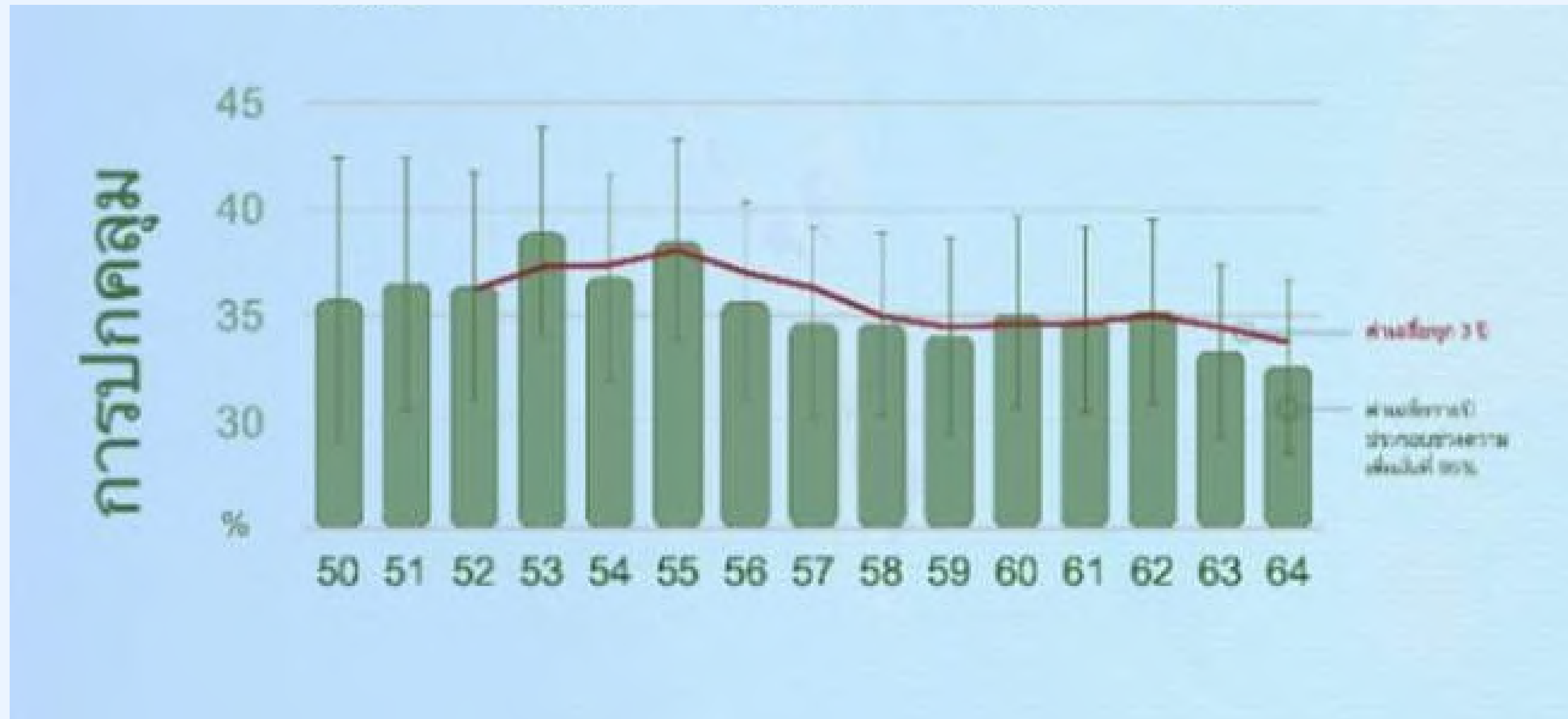
Enhalus acoroides



source : สัตว์ทะเลหายาก-WordPress.com

Aquatic animals that eat seagrass

INTRODUCTION



source: <https://www.dmcr.go.th>

Graph shows seagrass cover in Thailand in 2007-2021.

INTRODUCTION



source: <https://greennews.agency/?p=30926>

Enhalus acoroides blown along the shore



Soil that *Enhalus acoroides* grow in nature.

RESEACH QUESTIONS

1. Does each type of soil affect the growth of *Enhalus acoroides* differently?
2. What type of soil is the most suitable for nursing damaged *Enhalus acoroides*?
3. After releasing recovered seedling into the sea. Does the nursing seedling established as good as normal seedling?

Materials



Fish tank



Soil at Rajmangala beach



Soil at Boonkong and Makham bay



Sea water



Broken *Enhalus acoroides* branch washed on shore



Oven



Scale



Aquarium oxygen



pH pen



Thermometer



Quick soiltest



Salinity Refractometers



Tape measure



Muffle furnace

STUDY SITES



Boonkong Bay



Rajamangala Beach



Makham Bay

METHODOLOGY

1

Study site

2

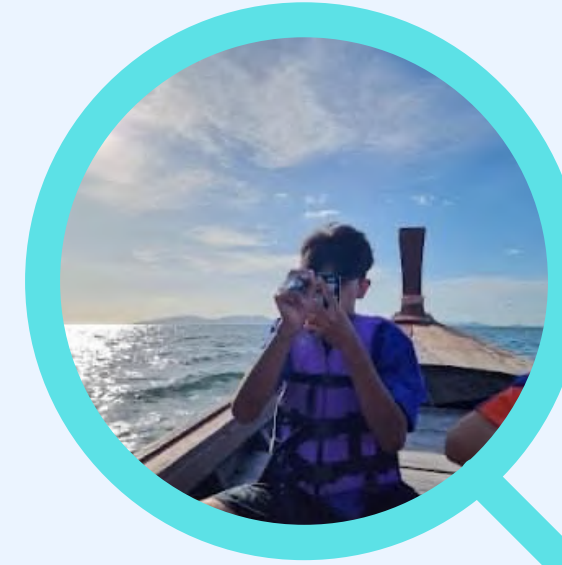
Preparation of equipment for
planting *Enhalus acoroides*

3

nursing *Enhalus acoroides* and
data collection

4

Planting of nursed *Enhalus acoroides*
in Boonkong Bay Area



METHODOLOGY

1. Explore study site



Rajamangala Beach



Boonkong Bay



Makham Bay



**Collect soil samples and analyze
soil quality according to the GLOBE
method (Soil Protocol).**



soil texture



soil fertility

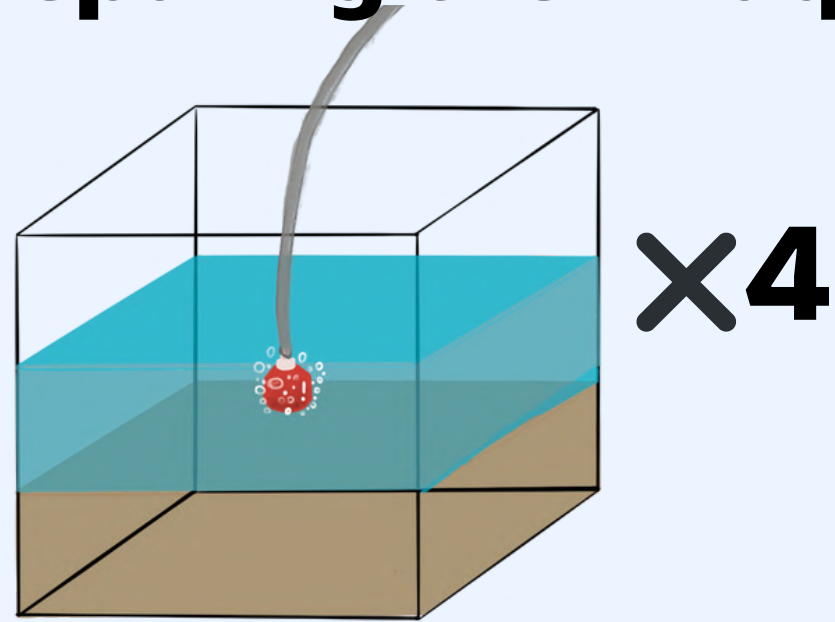


soil pH

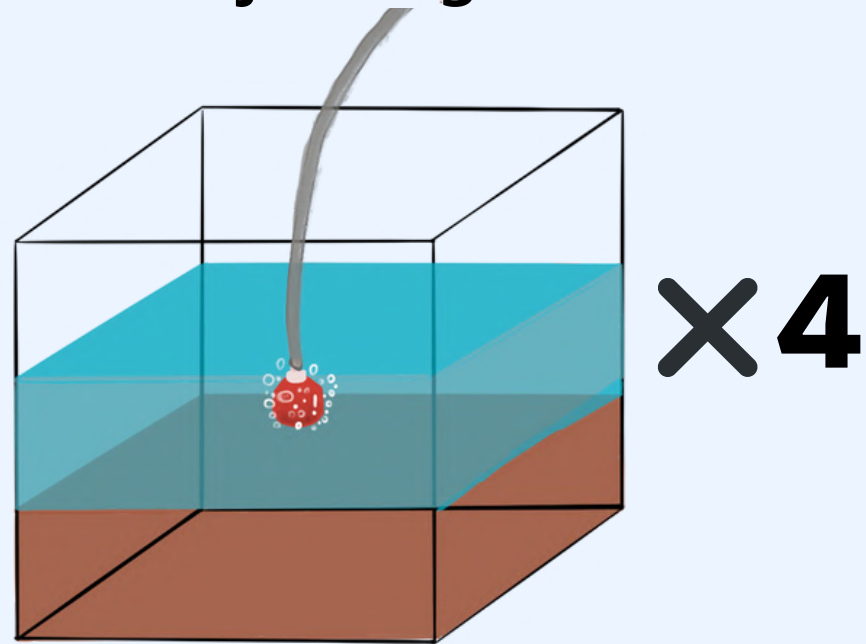
METHODOLOGY

2. Equipment preparation

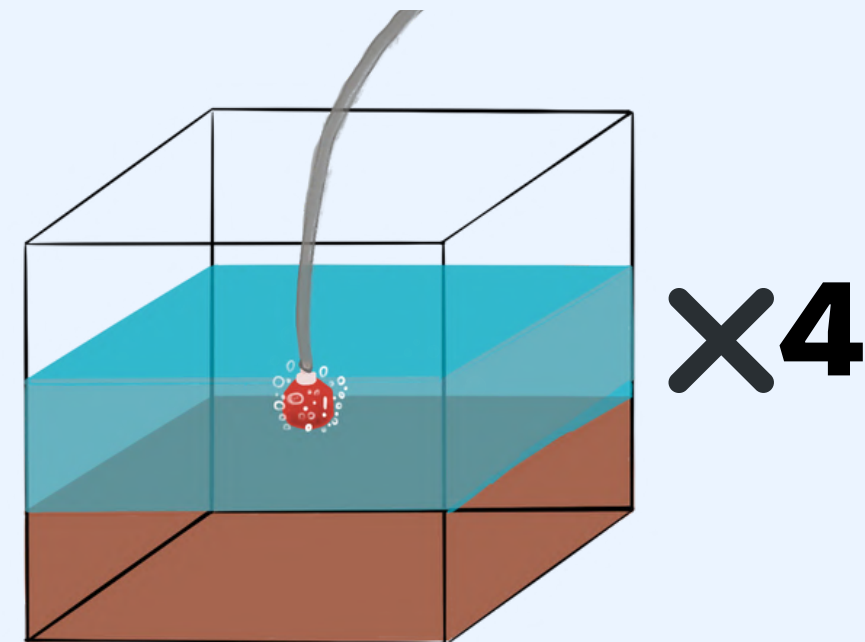
Preparing the 12 aquarium boxes



Soil at Rajamangala beach



Soil at Makham bay



Soil at Boonkong bay

Enhalus acoroides preparation

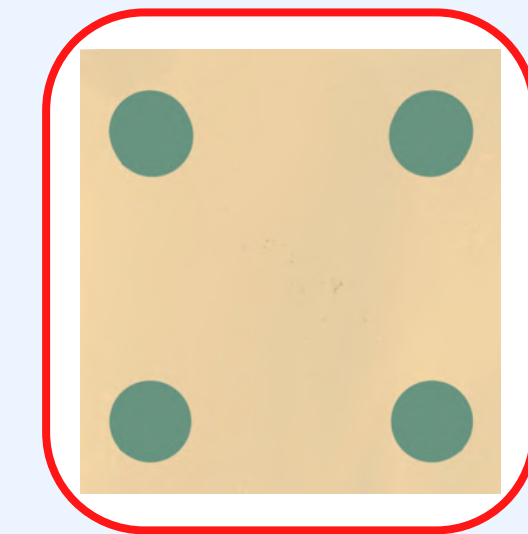
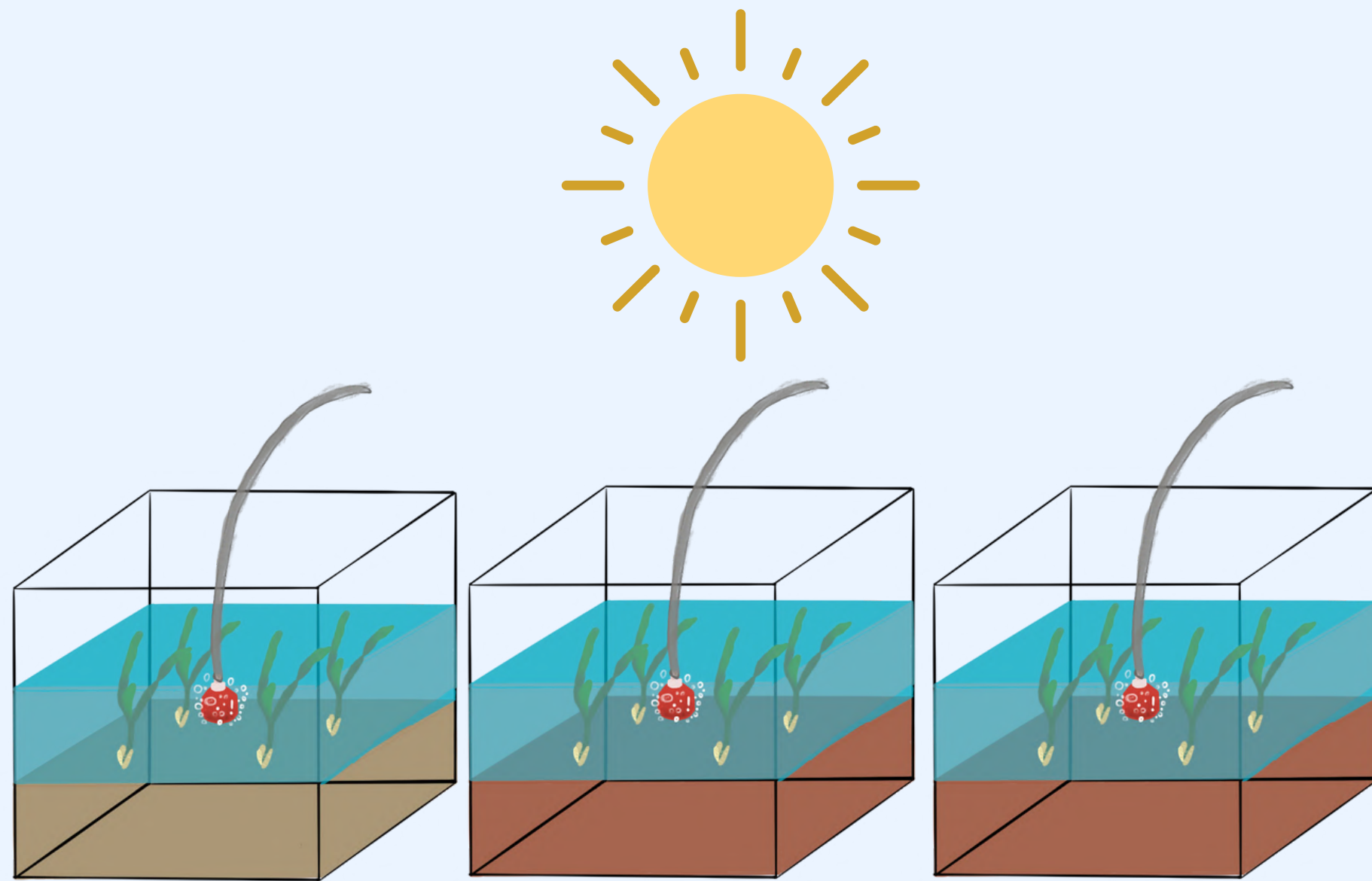


Trim away the rotten parts
and cut off the branches



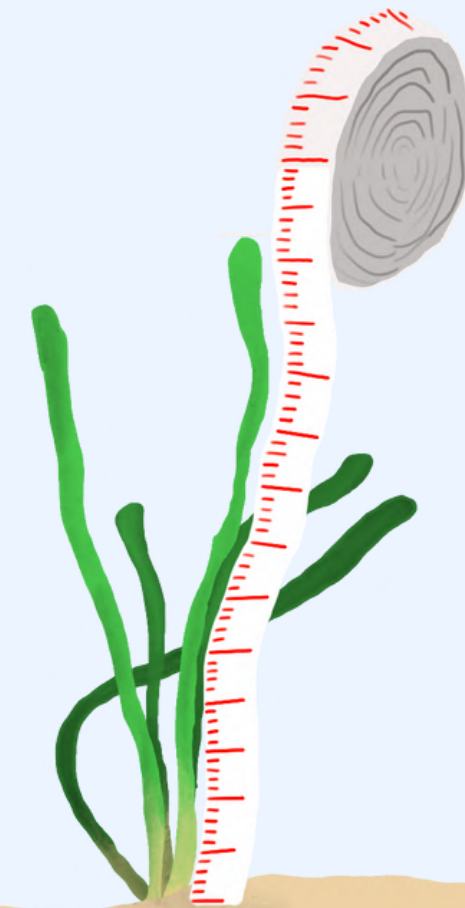
METHODOLOGY

3.Nursing and data collection



planting map in box

Measurement
of *Enhalus acoroides* growth



*** By planting 4 *Enhalus acoroides* per box and placing all 12 boxes in a row, by facing the same direction to the sun, the experimental site is open area where the light can reach throughout the day.

***Measure the width, the length and number of leaf and control the salinity every 3 days for 1 month.

METHODOLOGY

4. Planting nursed *Enhalus acoroides* at the sea coast of Boonkong Bay for 1 month and collected the survival data 1 month after planting.

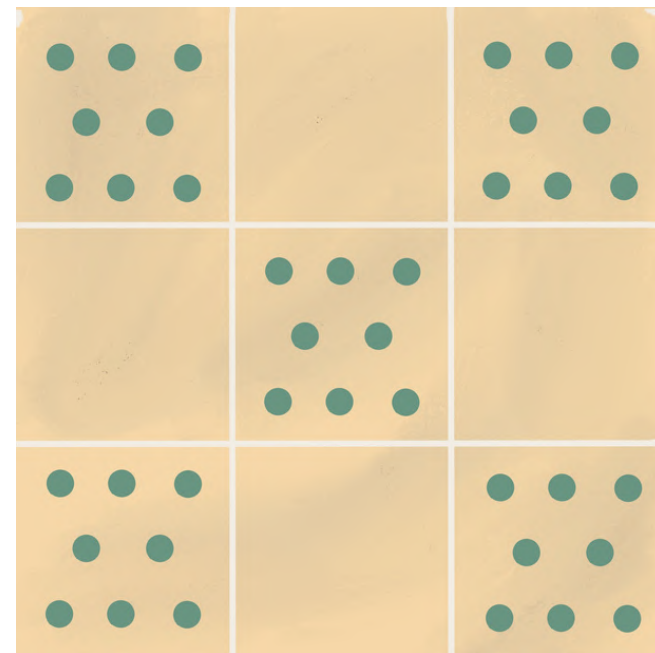


Diagram of planting of nursed
Enhalus acoroides

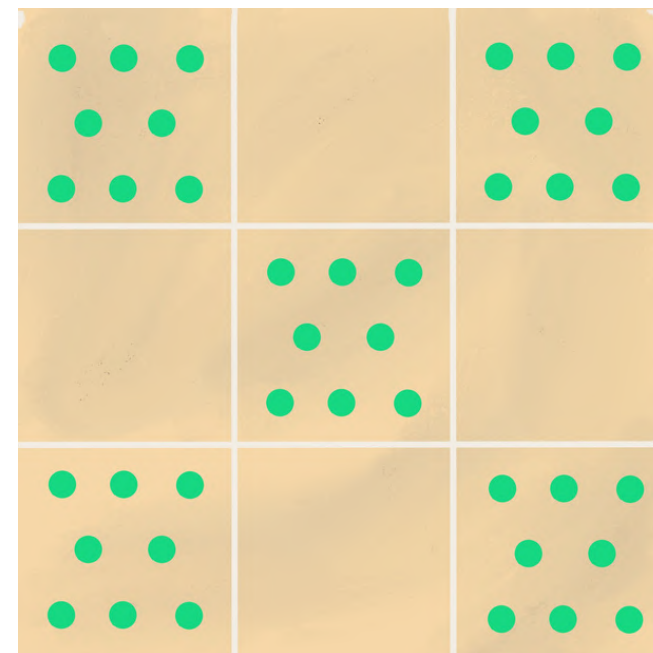


Diagram of planting of seeded
Enhalus acoroides

***** Plant in a checkered pattern in each square and plant 8 *Enhalus acoroides* per square**



RESULTS

1. Growth rate (length of leaf) of nursed *Enhalus acoroides* in 3 soil types.

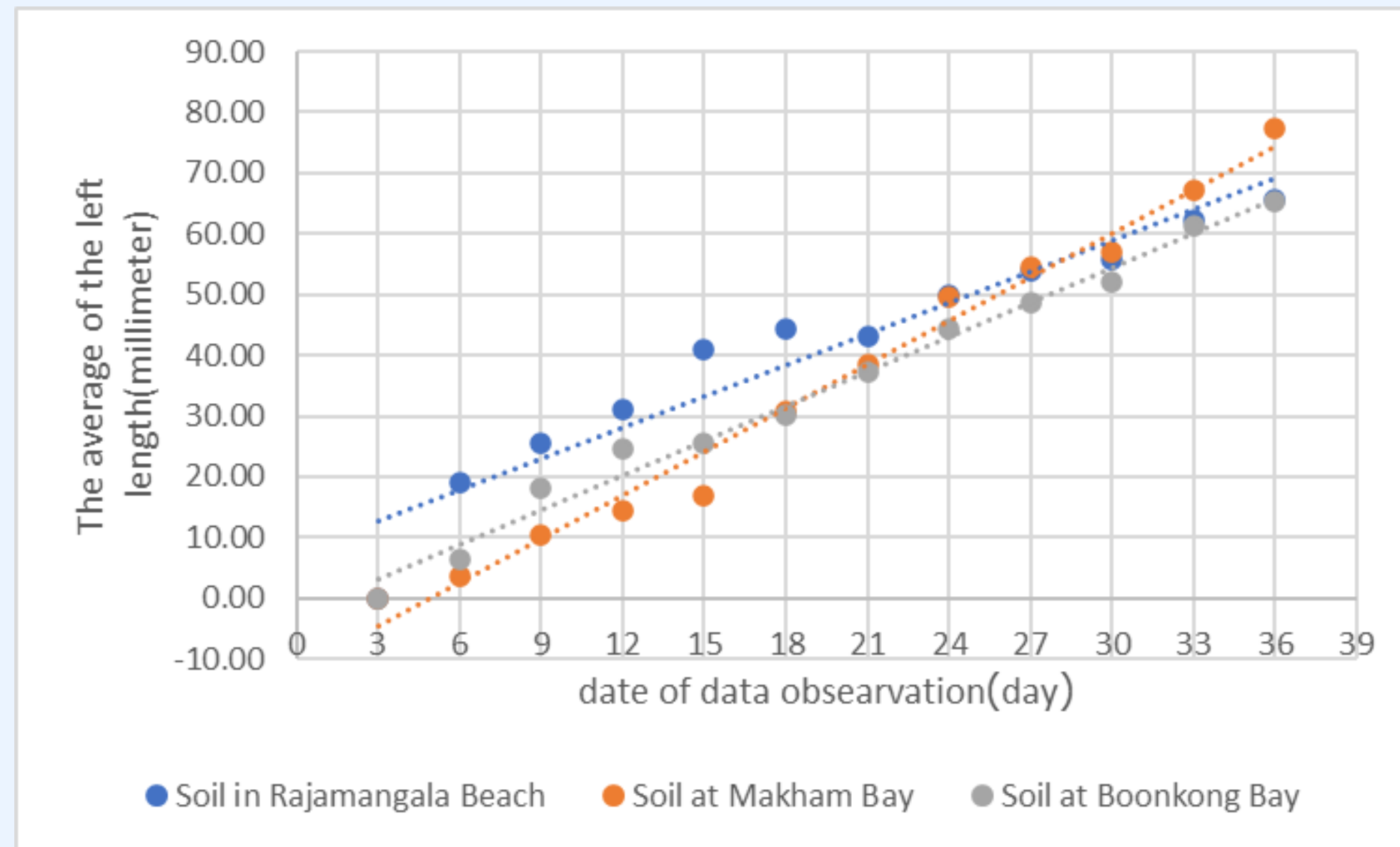


Figure 1. Shows the growth rate of *Enhalus acoroides* in 3 soil types.



RESULTS

1. Growth rate (width of leaf) of nursed *Enhalus acoroides* in 3 soil types.

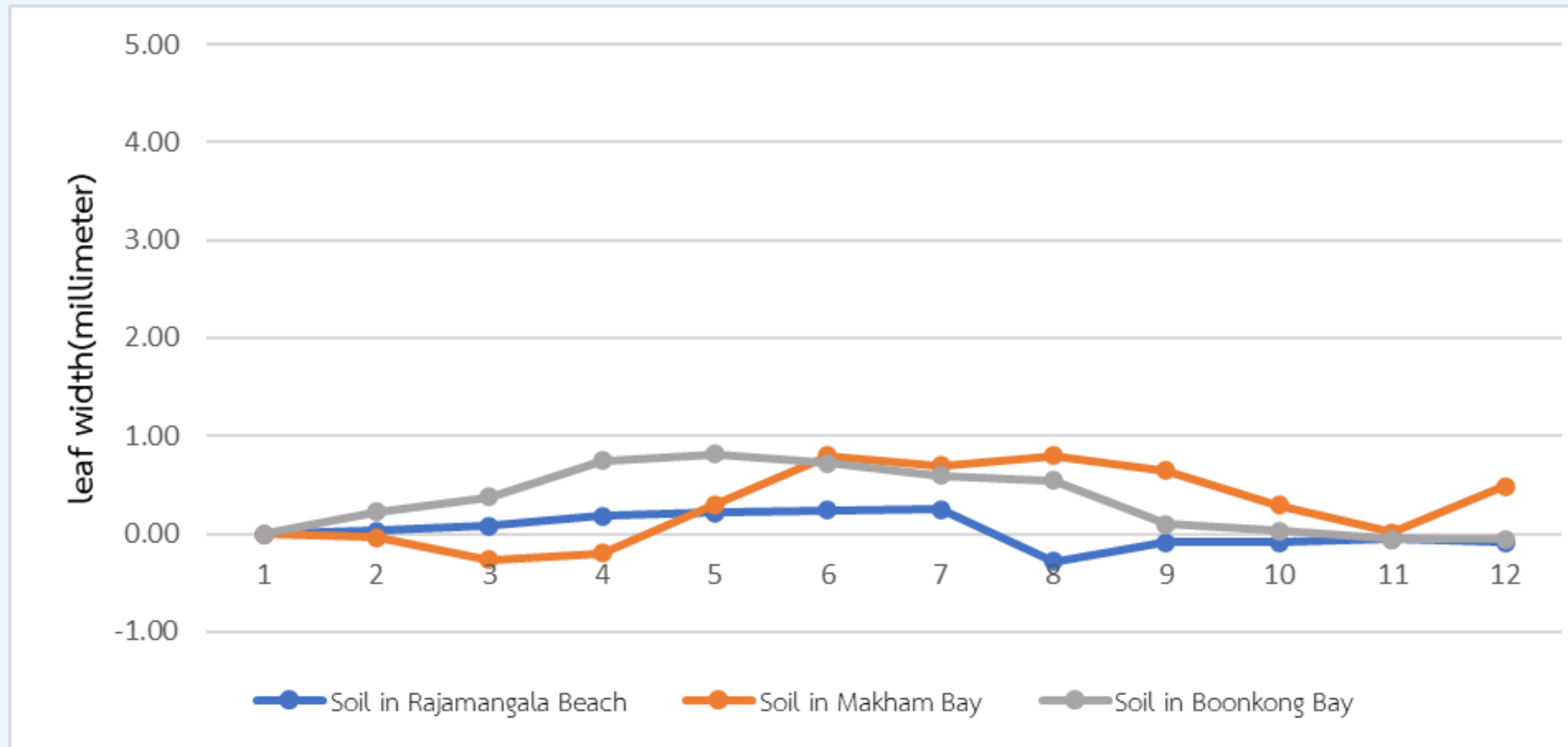


Figure 2 Shows the average growth rates of the nursed *Enhalus acoroides* leaf widths in the three soil types.

RESULTS

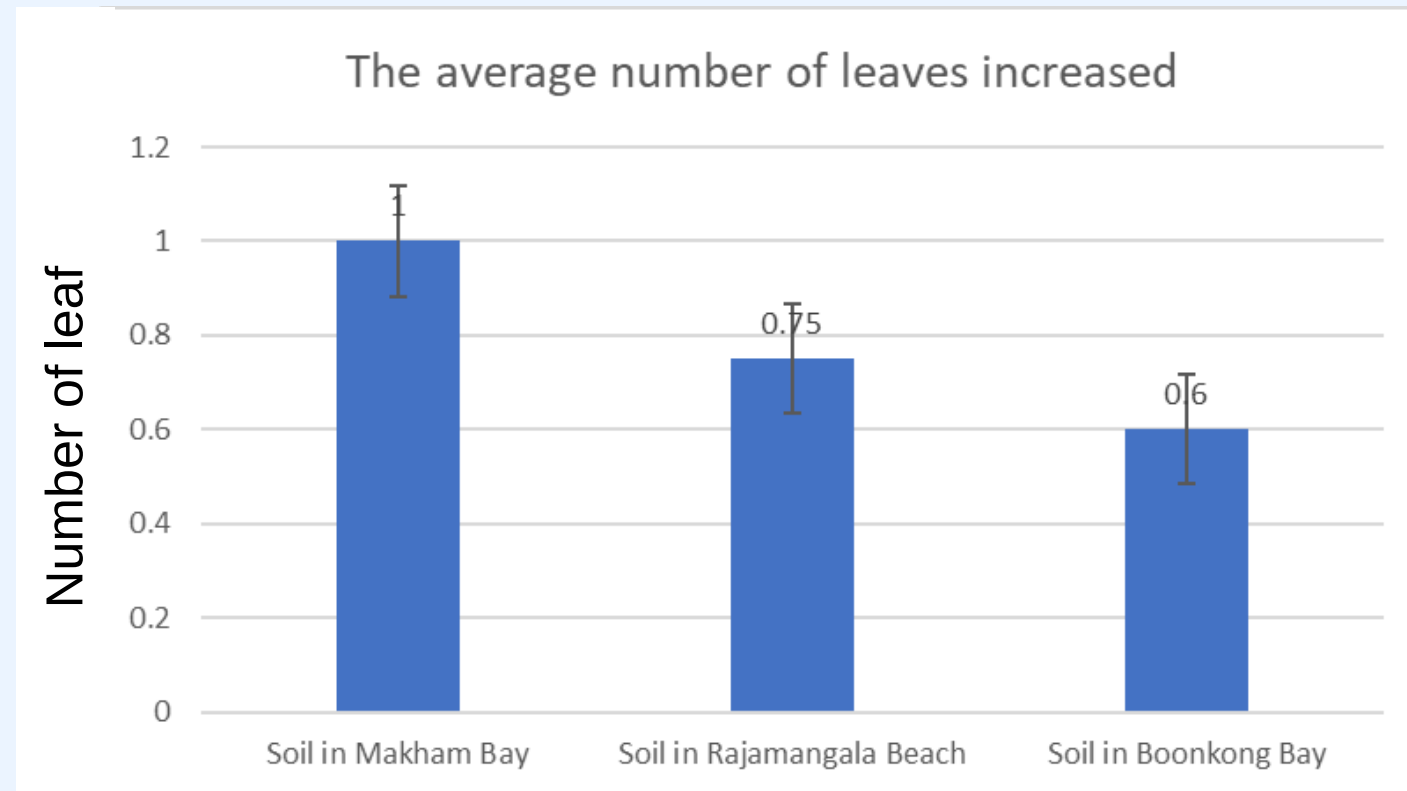


Figure 3. Shows the average number of *Enhalus acoroides* leaves increasing in 30 days after nursery in the three soil types.

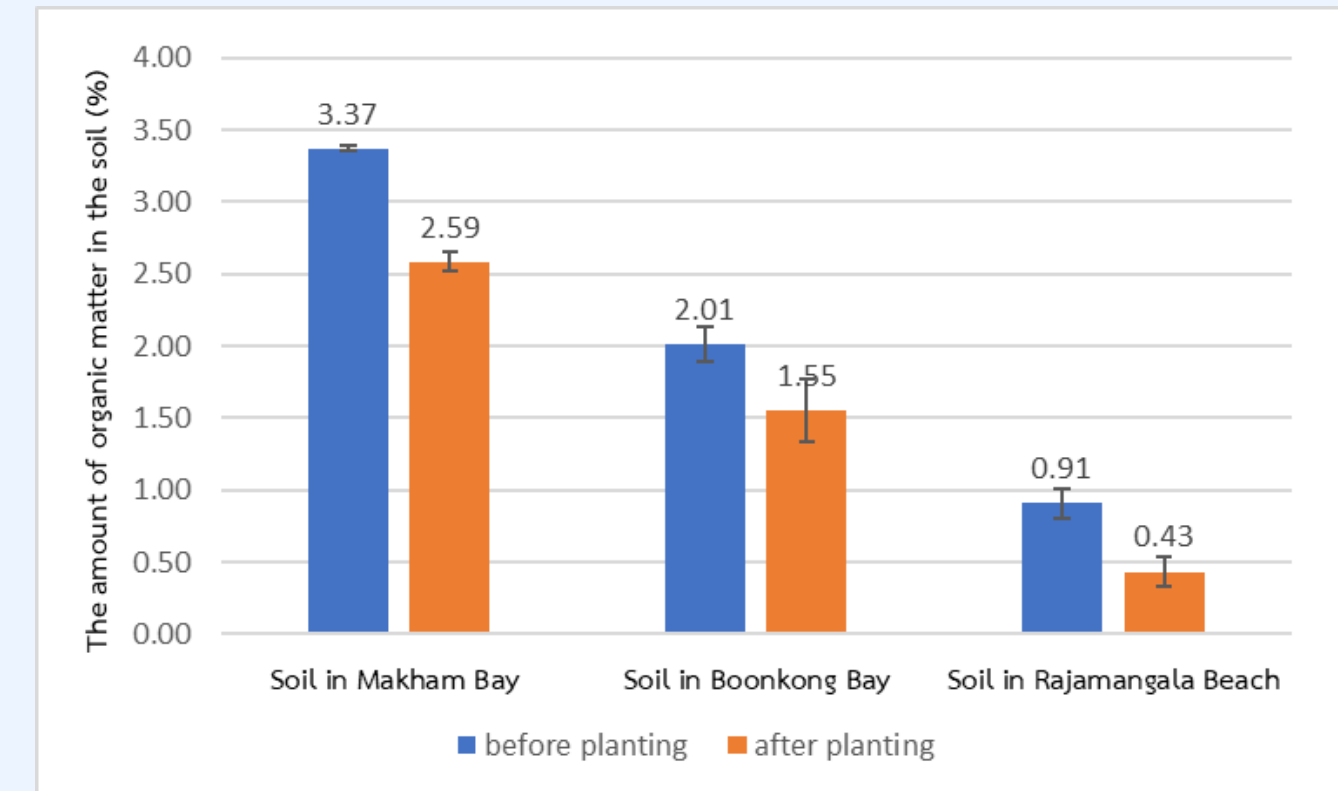


Figure 4: Shows organic matter content in the soil before and after the experiment from the three soil types.

Table 1 Shows the amount of organic matter in the soil before and after the experiment from the three soil types.

Experimental series	Nutrient content in the soil					
	N		P		K	
	before	back	before	back	before	back
Soil in Rajamangala Beach	trace	trace	trace	trace	trace	trace
Soil in Makham Bay	low	trace	low	low	low	trace
Soil in Boonkong Bay	low	trace	low	low	low	trace

RESULTS

4. The results of survival rates of the nursed *Enhalus acoroides* and seeded *Enhalus acoroides*.

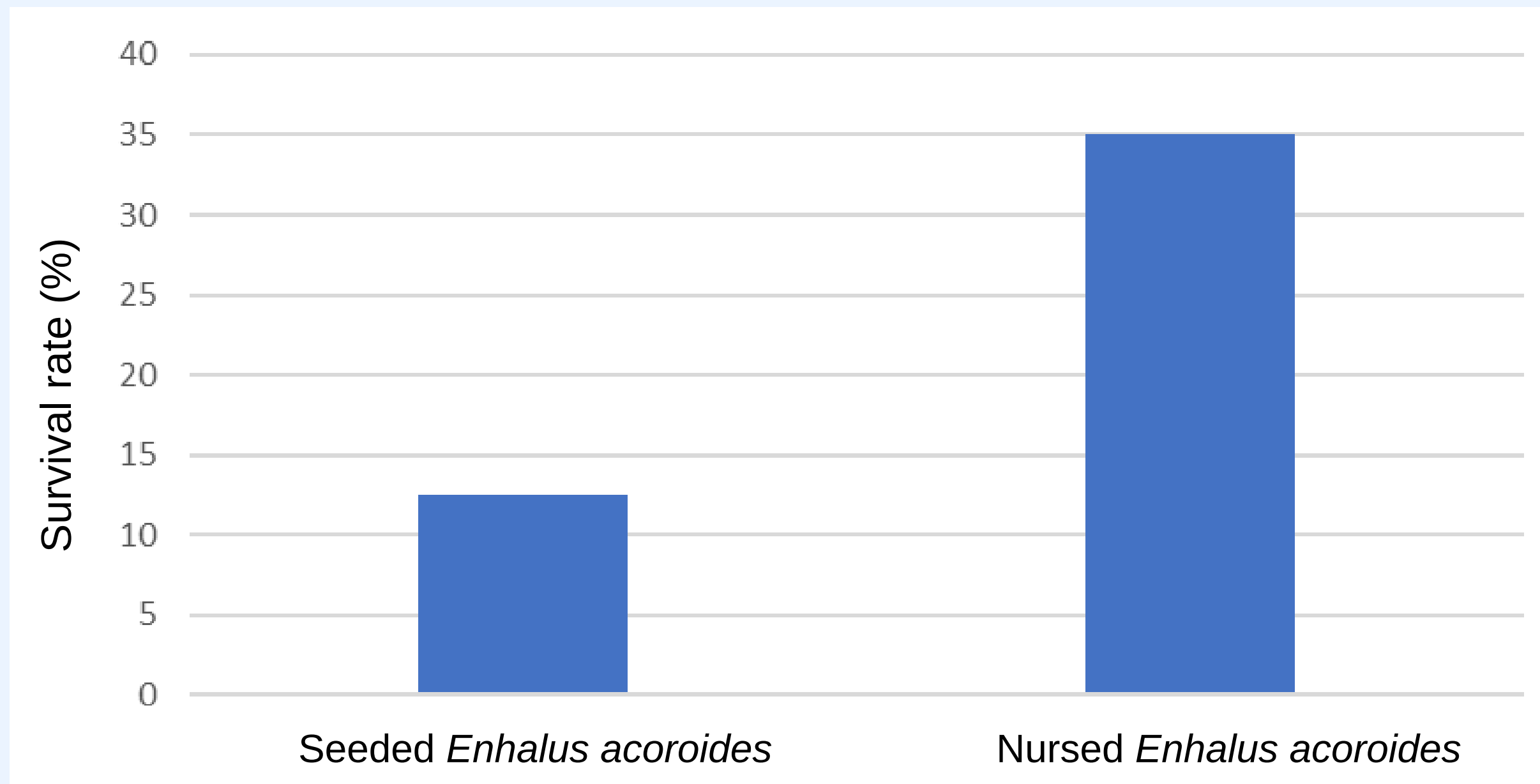


Figure 5. Shows the survival rates of the seeded *Enhalus acoroides* and the nursed *Enhalus acoroides*.

ECONOMIC VALUE

Seeded *Enhalus acoroides*

5 baht per seed

3 months prepare seedling

survival rate 12.5%

Nursed *Enhalus acoroides*

at the moment: free

1 month prepare seedling

survival rate 35 %labor intensive



If we plant *Enhalus acoroides* in 100 squaremeters so we have to plant 4000 *Enhalus acoroides*. How much do we have to pay???

CONCLUSIONS

1. The growth rate of the *Enhalus acoroides* planted in the soil at Makham bay is the best.
2. The type of soil suitable for growth is sandy loam.
3. Testing the amount of organic matter and nutrients in the soil after the experiment found that both were decreased.
4. Survival rates of nursed *Enhalus acoroides* and seeded *Enhalus acoroides* after planting at Boonkong Bay found that the nursed *Enhalus acoroides* has survival rate about 3 times higher than seeded *Enhalus acoroides*.



🔍 seeded *Enhalus acoroides* ×



🔍 nursed *Enhalus acoroides* ×

BENEFITS OF THE STUDY

1. We can enlarge huge numbers of *Enhalus acoroides* seedling needed only 3 times shorter than the traditional way.
2. More economically for replanting *Enhalus acoroides*.
3. Making recovering of the environment more realistically, efficiently in time to increase marine life and environment.



source: มติชนออนไลน์



source: เมืองไทยวันนี้

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Chulabhorn Science High
School Trang**



Bohin Farmstay

REFERENCE

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Thank you