



# Catalyst's Effect on Microbe's Electric Current Generation in the Mud of Mangrove Forest in Phetchaburi Province

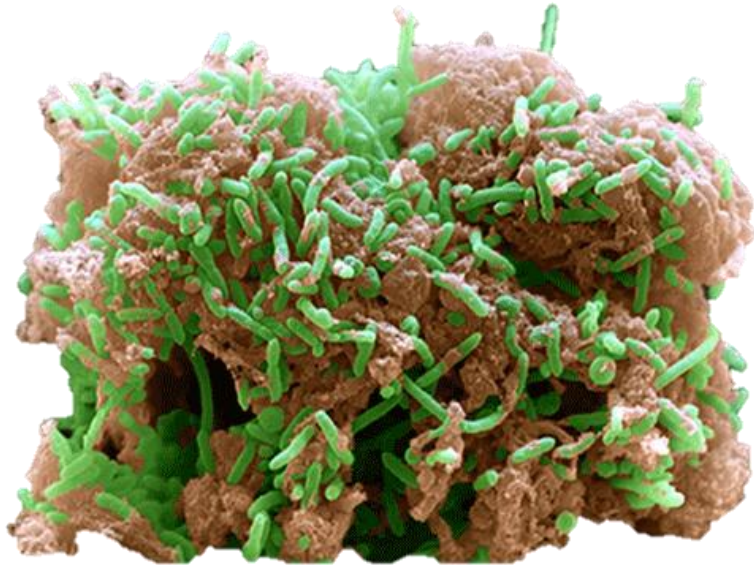
Tanatul Samoum  
Donporn Rodkrajub  
Bantita Sapermsub

# Content

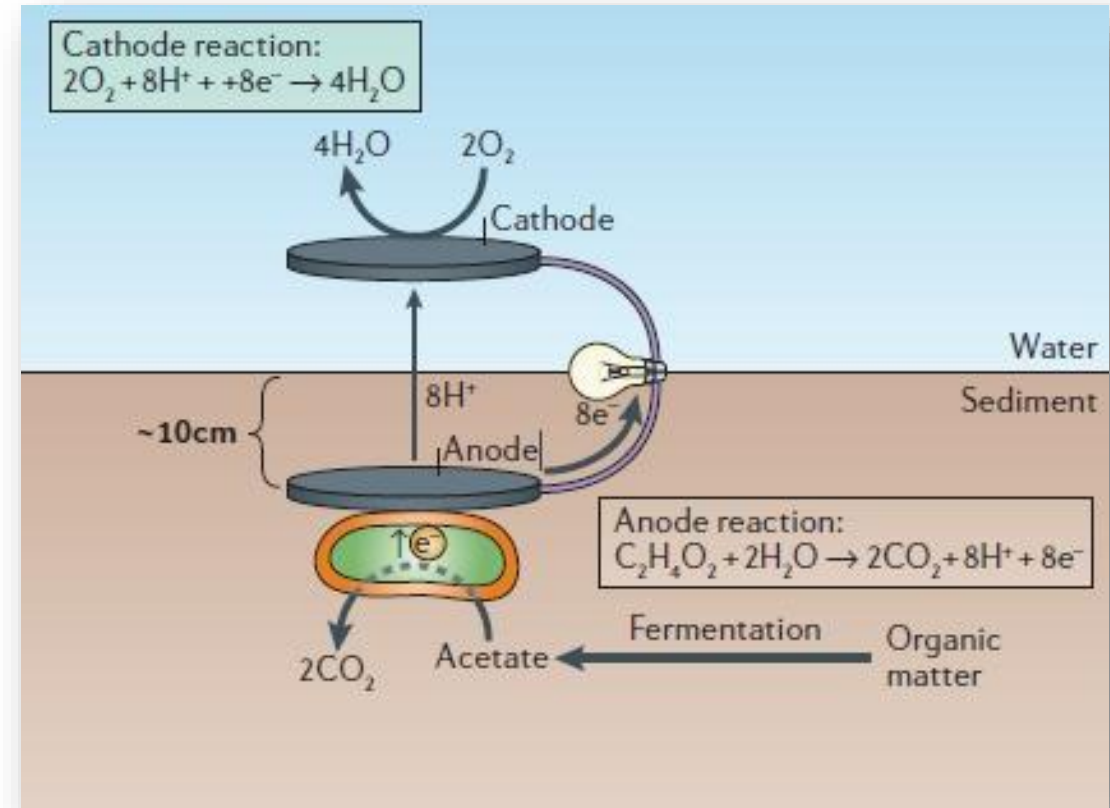
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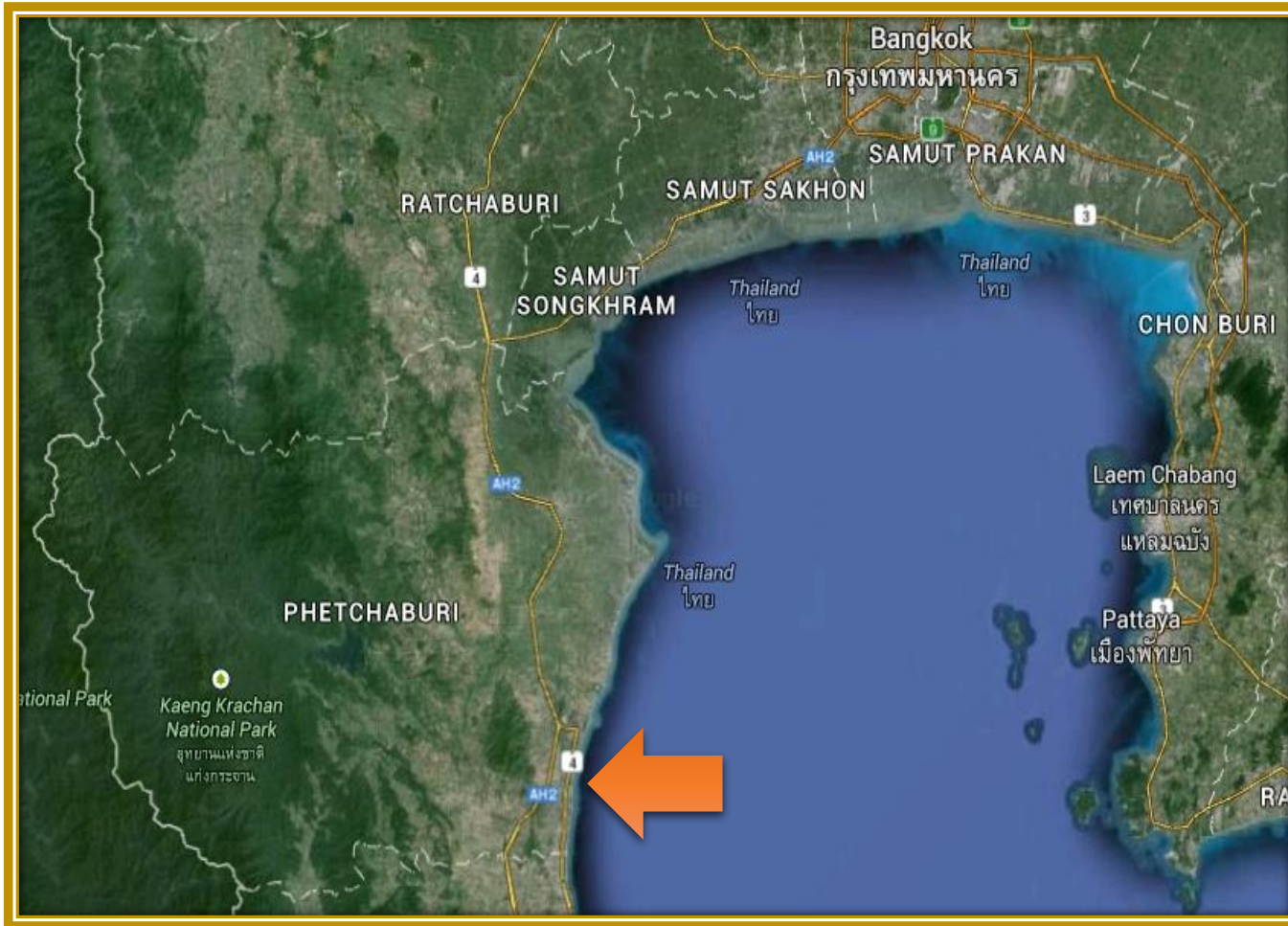
# Introduction



*Geobacter sp.*



# Introduction

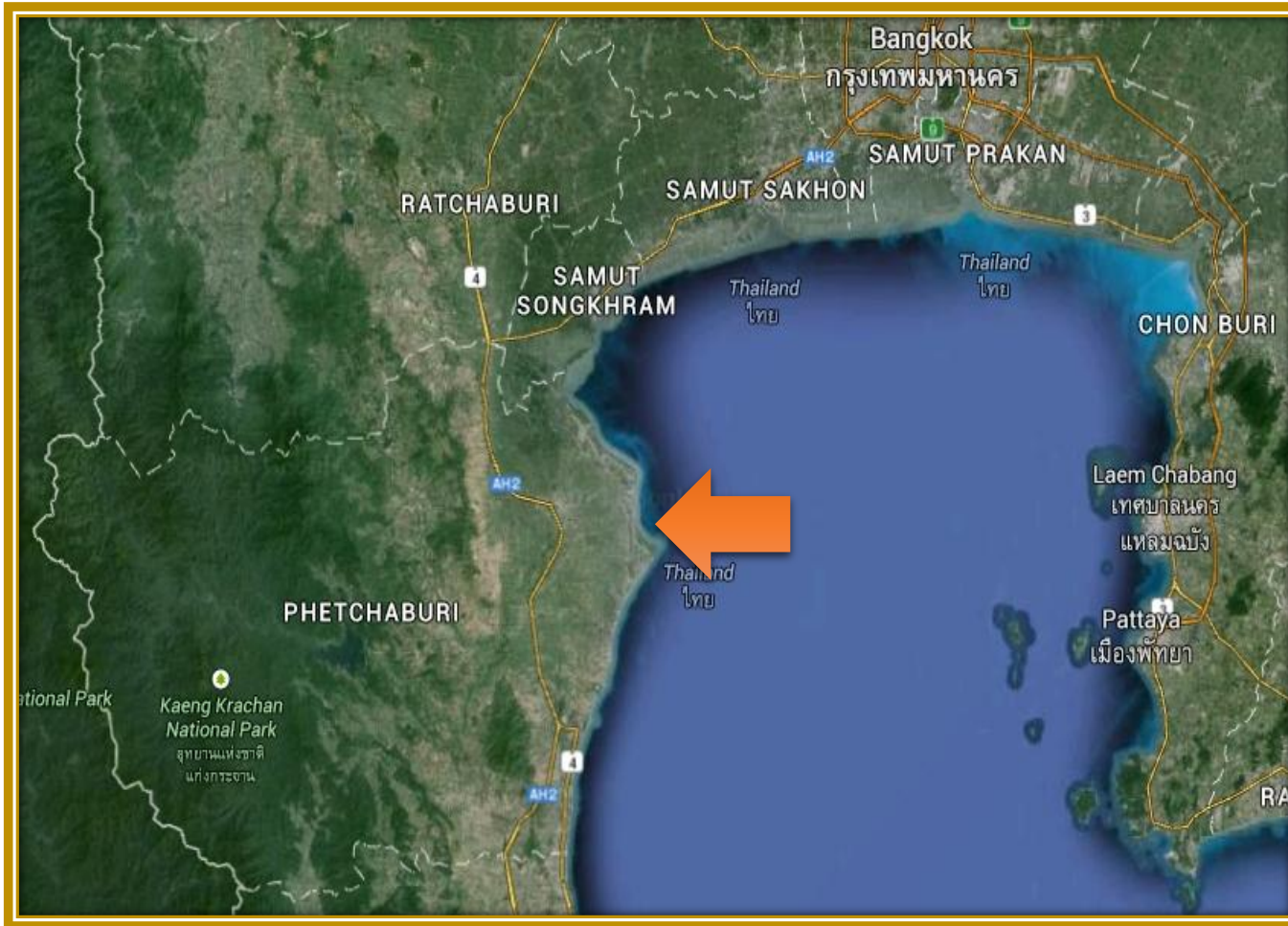


## Sirindhorn International Environmental Park





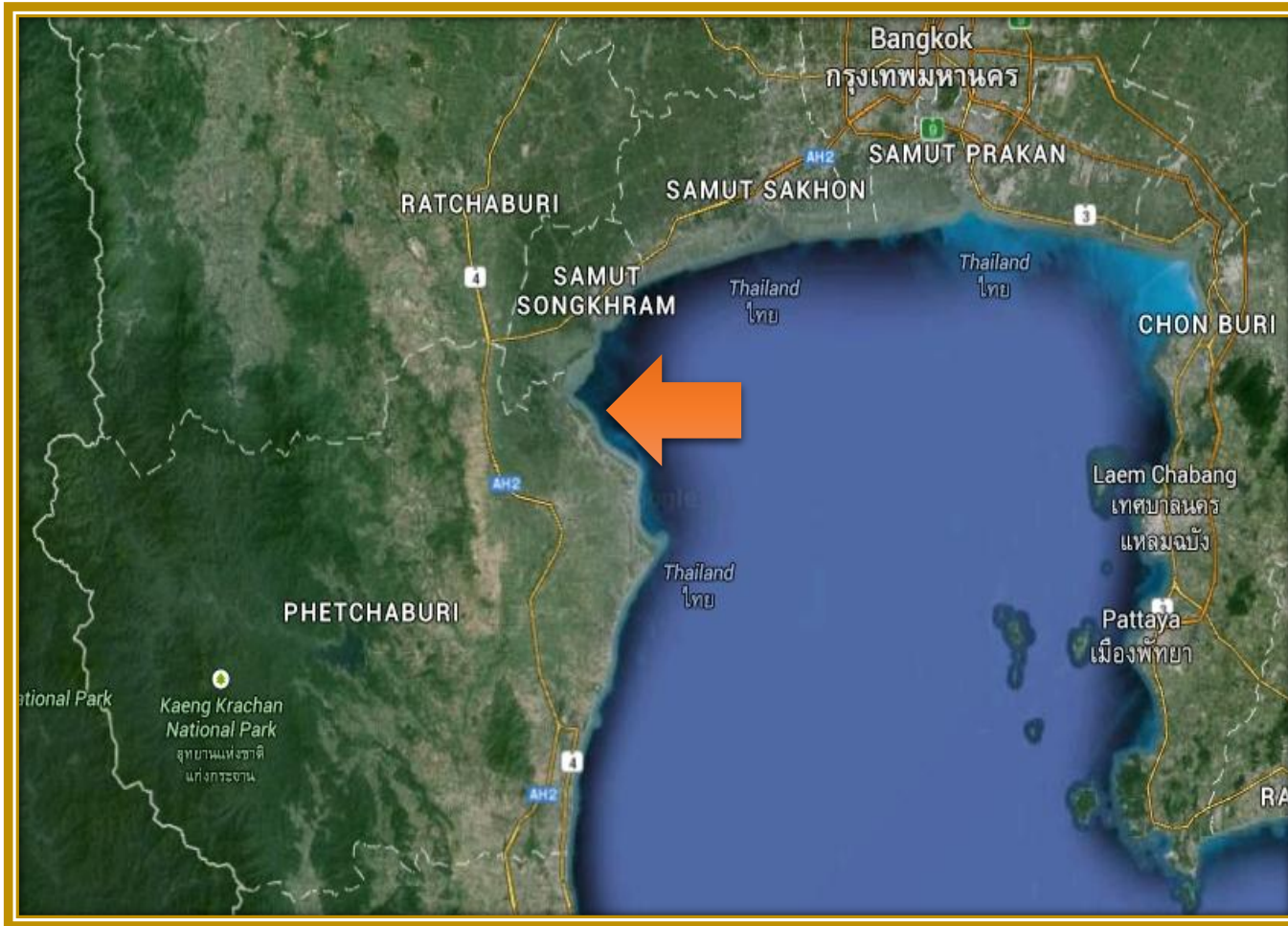
# Introduction



Laem Phak Bia  
Environmental Research  
and Development Project



# Introduction

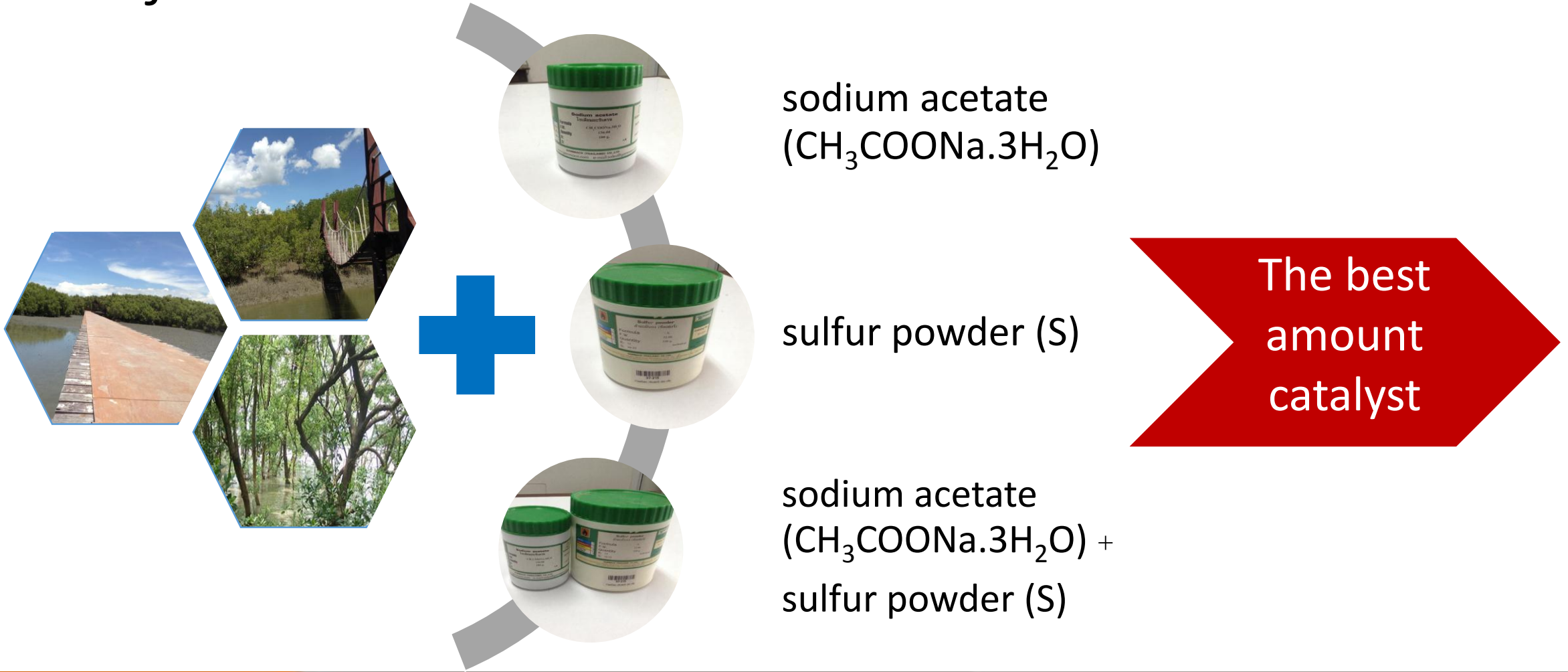


Bangtaboonwittaya  
School





# Objectives



# Methods

Collect the mud sample deep 10 cm from the surface



Compare the effect of mud from 3 sources for electricity generation



Compare the effect of catalyst to the electricity generation



Compare the amount of catalyst with affect of the electricity generation



# Methods

Collect the mud and water sample



Sirindhorn International  
Environmental Park

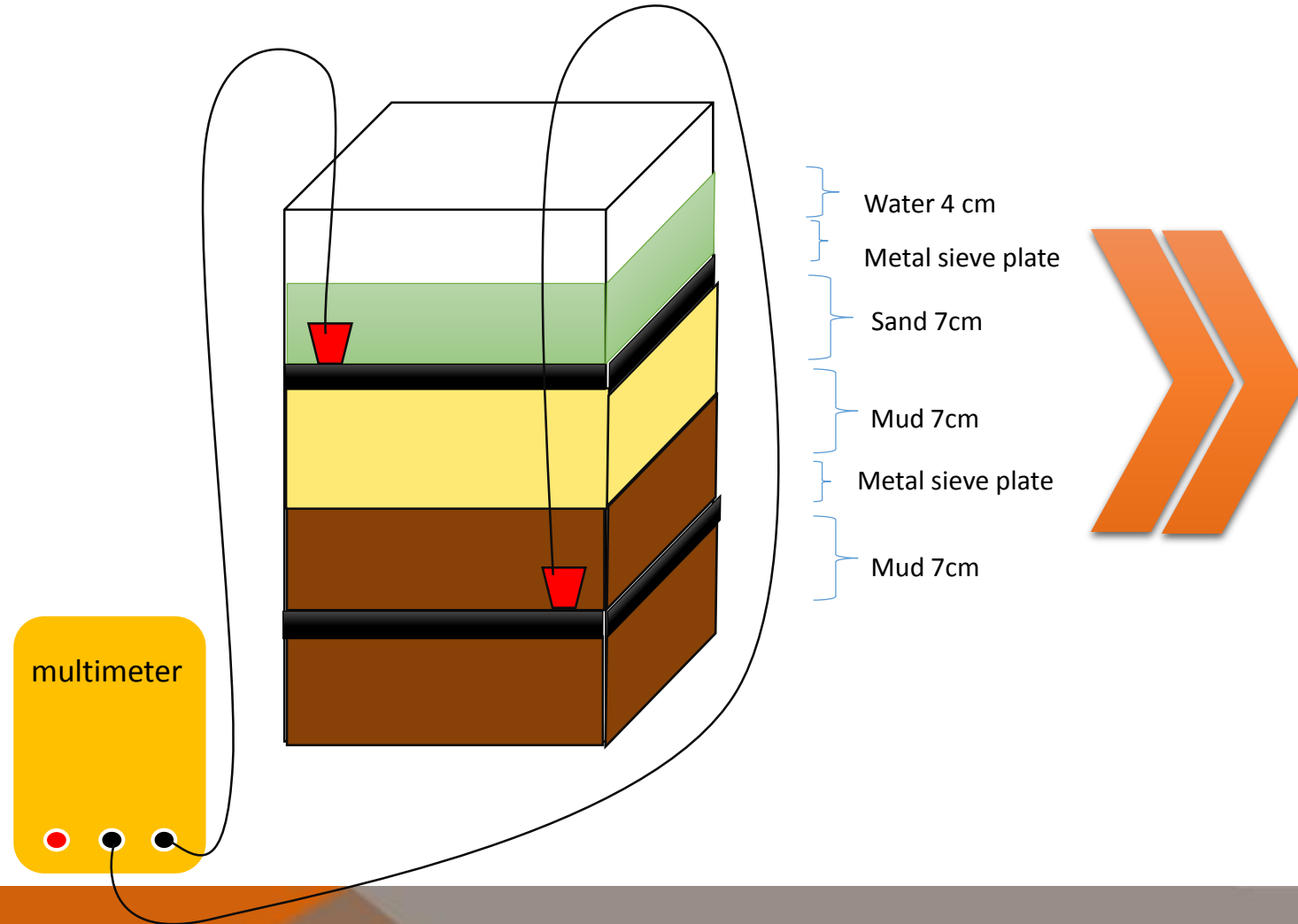


Laem Phak Bia  
Environmental Research  
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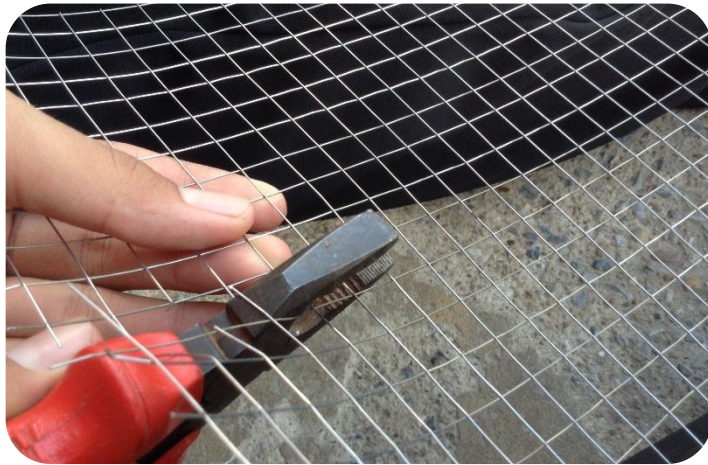
Bangtaboonwittaya School

# Materials and Methods



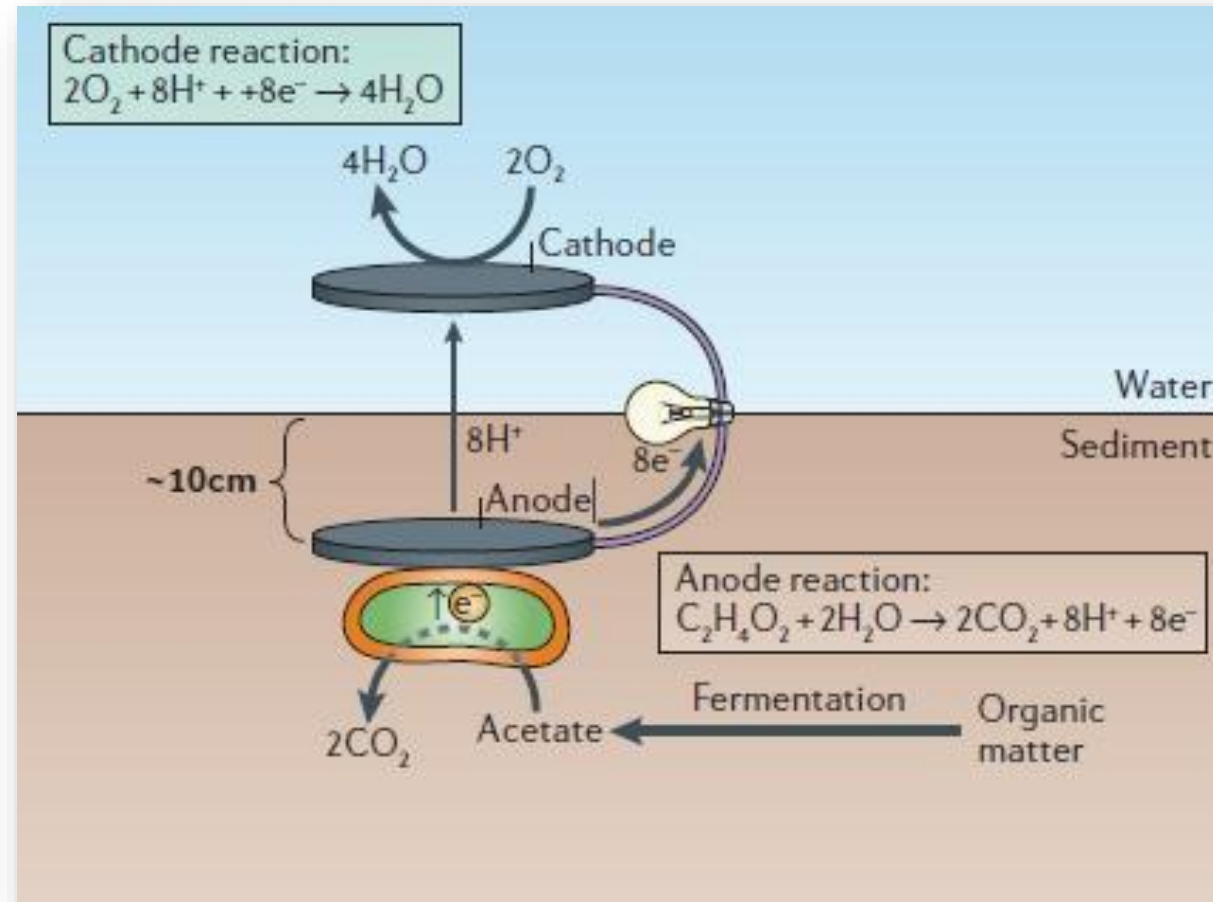
# Materials and Methods

Make the sieves

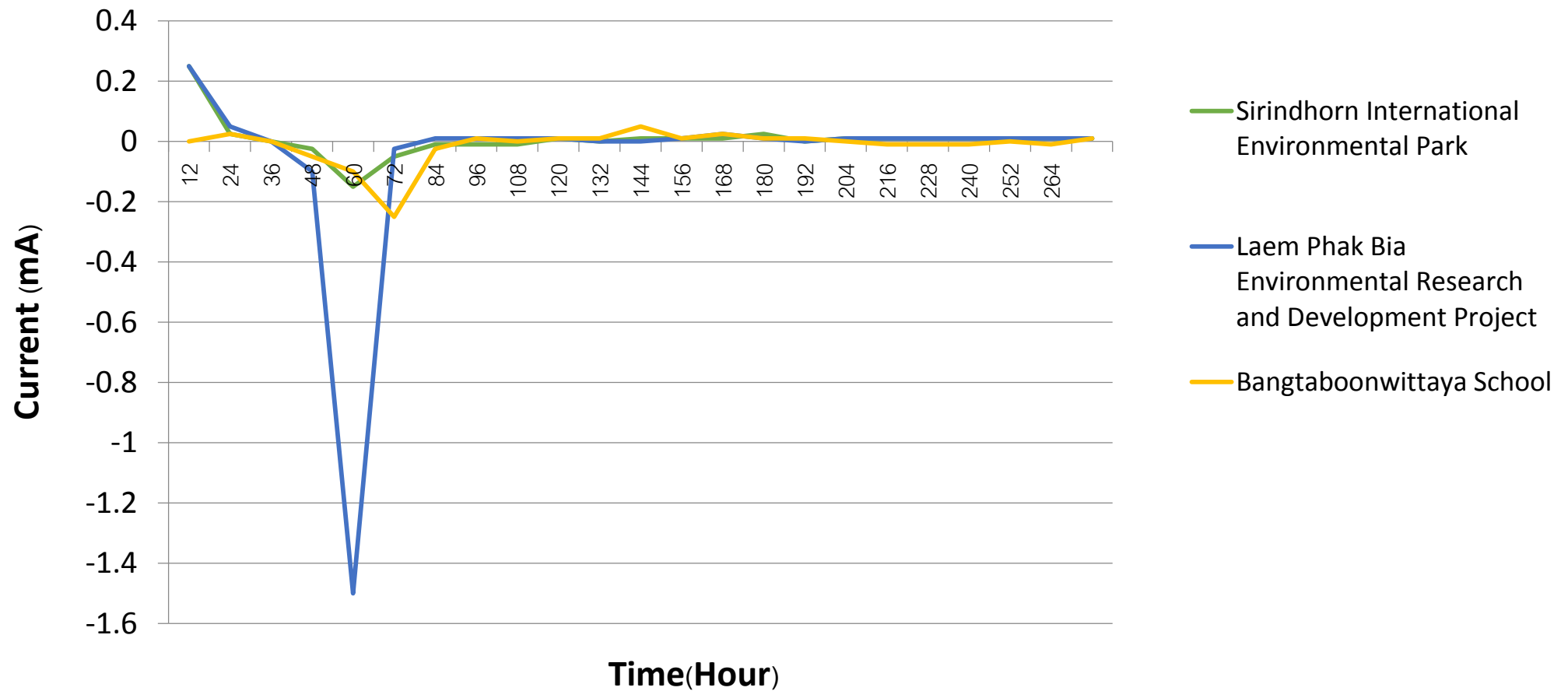




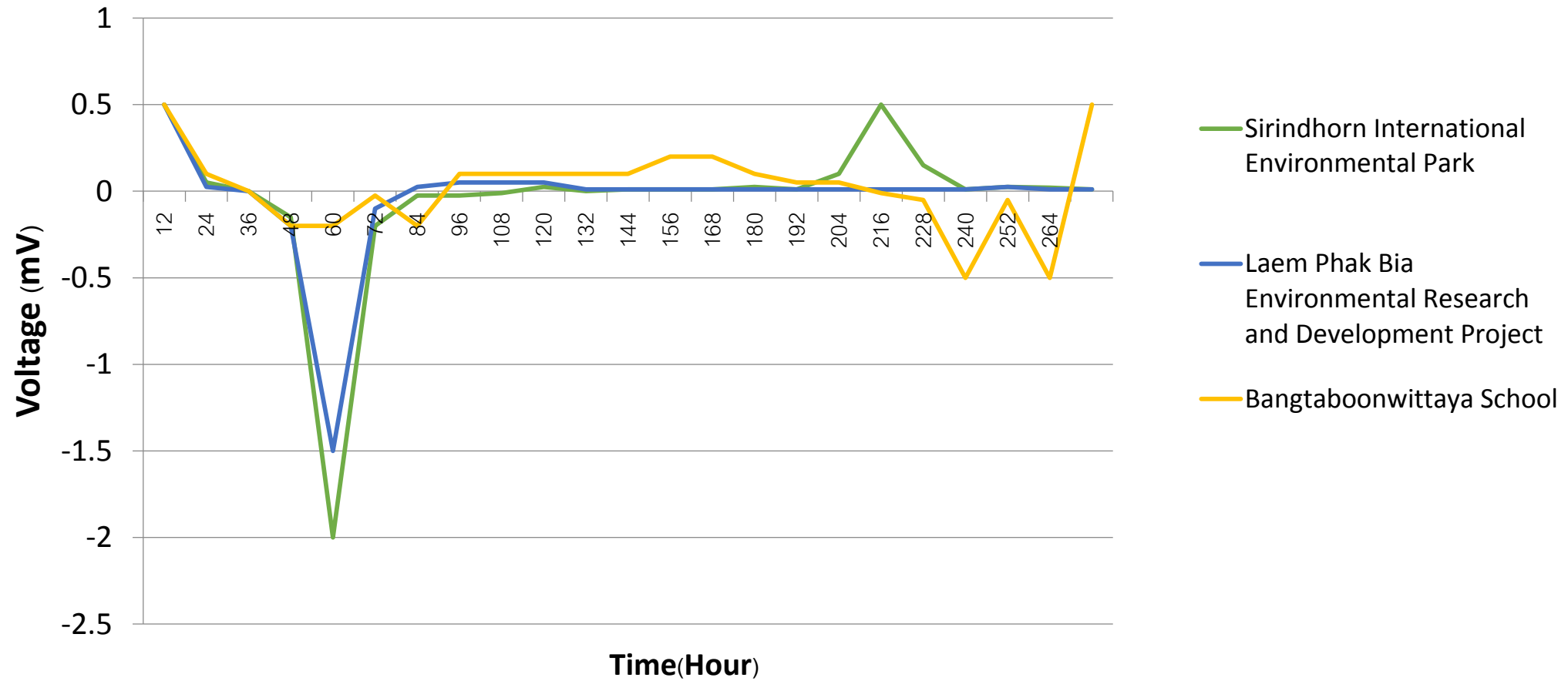
# Materials and Methods



# Results and Discussion



# Results and Discussion





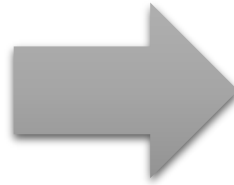
# Results and Discussion



mA



Project Laem Phak Bia  
Environmental Research  
and Development

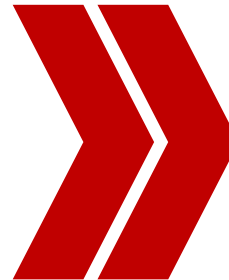
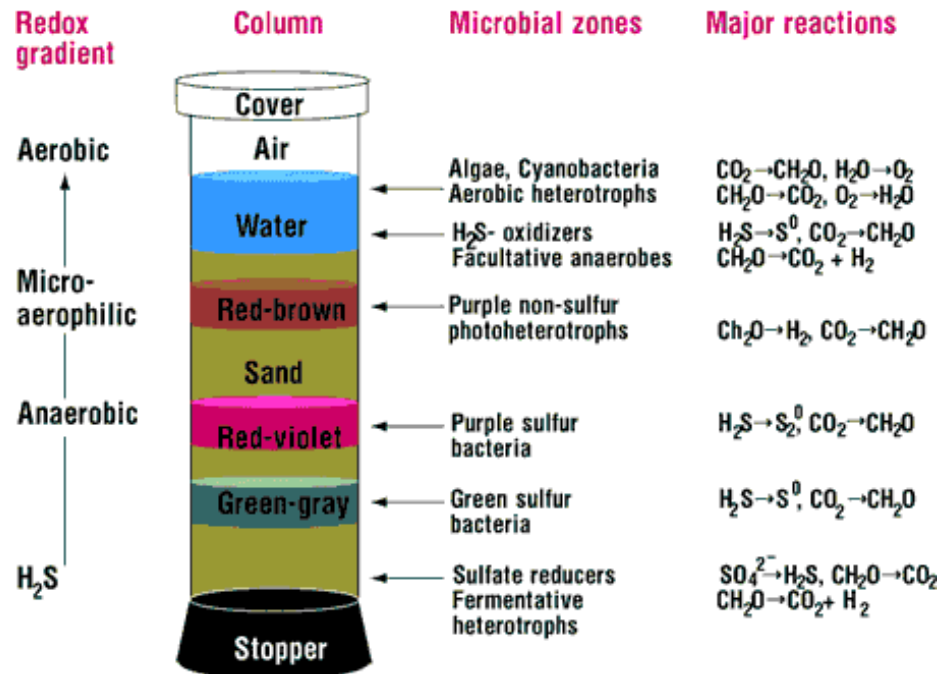


mV

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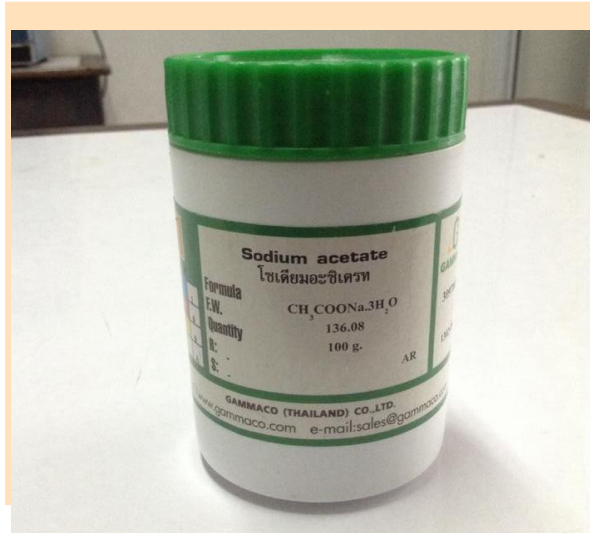
# Results and Discussion

- ใช้หลักการของ Winogradsky column



# Materials and Methods

## Chemical catalyst



Sodium acetate



Sulfur powder



# Materials and Methods

Compare the effect of catalyst to the electricity generation



without any chemical  
catalyst  
(Non autoclave)

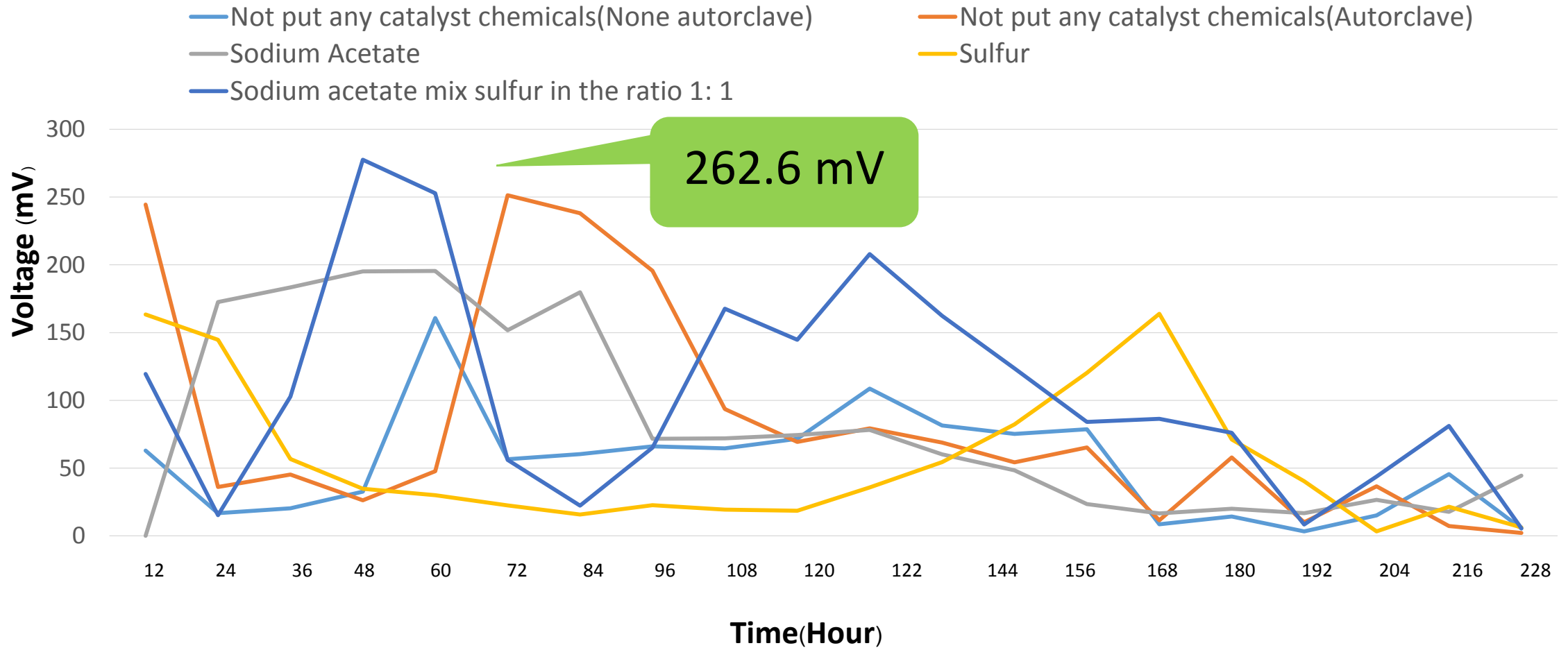
without any chemical  
catalyst (Autoclave)

Sodium acetate

Sulfur powder

Sodium acetate mix  
with Sulfur powder  
in 1:1 ratio

# Results and Discussion



# Materials and Methods

Compare the amount of catalyst with affect of the electricity generation



without any chemical  
catalyst (Non autoclave)

Sodium Acitae : Sulfur  
3:3

Sodium Acitae : Sulfur  
7:7

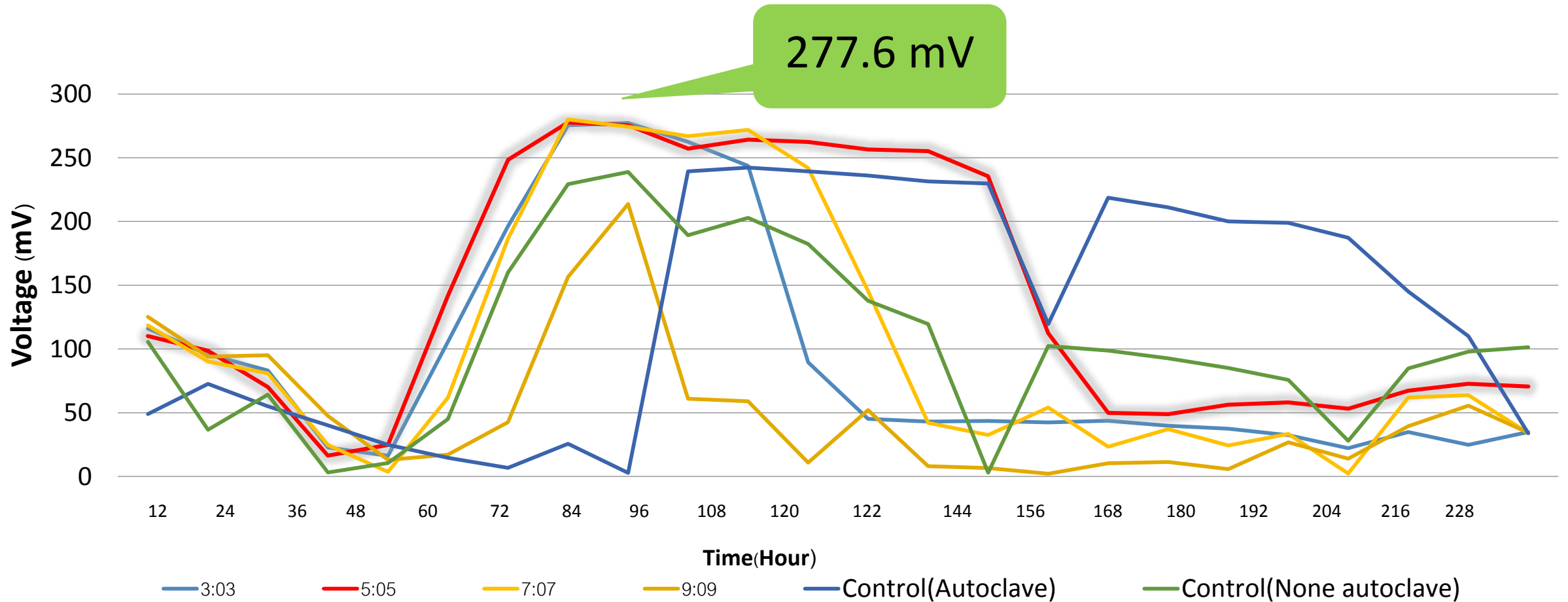
without any chemical  
catalyst (Autoclave)

Sodium Acitae : Sulfur  
5:5

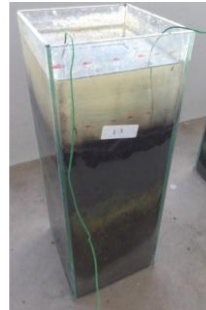
Sodium Acitae : Sulfur  
9:9



# Results and Discussion



# Conclusion



Quantity is 5:5 g



Sodium acetate mix with Sulfur in  
1:1 ratio



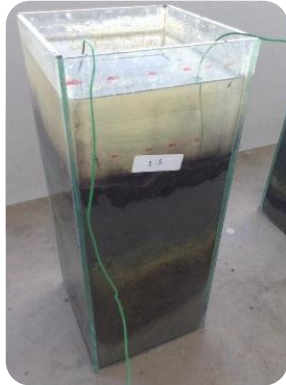
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200 mV

262.6 mV

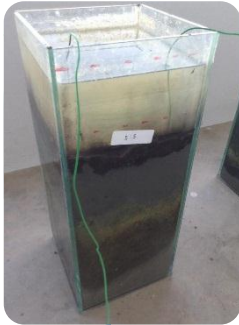
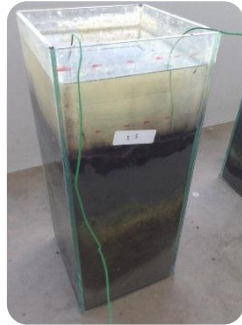
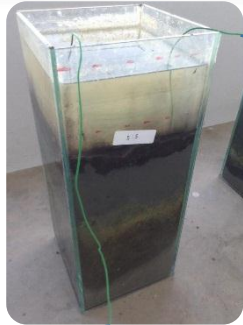
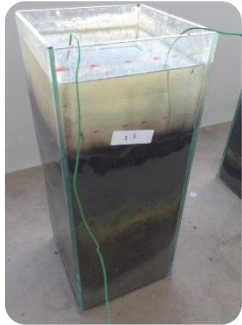
277.6 mV

# Discussion



277.6 mV

LED 5 mm.  
1.5-3 v

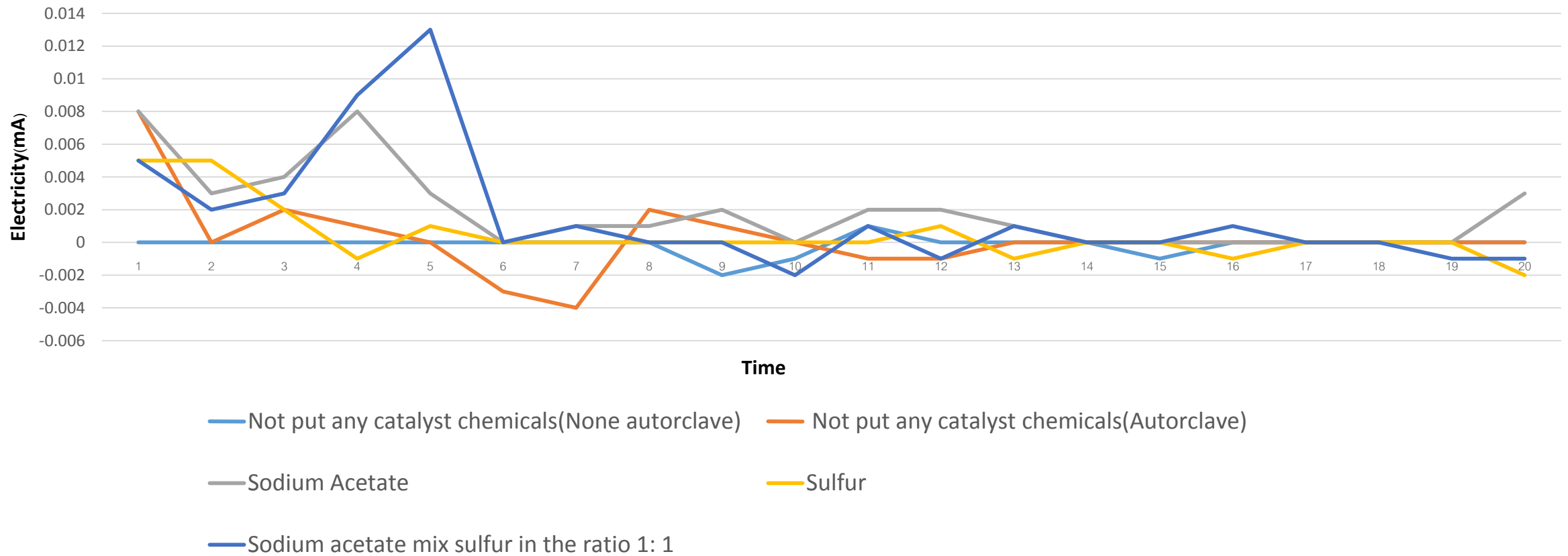




# References

1. Derek Lovley. (2003). Bug juice: harvesting electricity with microorganisms (Online). Available : <http://www.geobacter.org/publication-files/16778836.pdf>, 8 september 2013
2. Daniel R. Bond and Derek R. Lovley (2002). Electricity Production by *Geobacter sulfurreducens* Attached to Electrodes (Online). Available : <http://aem.asm.org/cgi/content/short/69/3/1548>, 8 september 2013

# Results and Discussion



# Results and Discussion

