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UiTM Cawangan N. Sembilan, Kampus Seremban

ENPROSALT (ENERGY PRODUCE BY SALT)

[1]Nurqistina Batrisyia Md Nirwan,[2]Rabiatul Adawiyah Azhar,[3]Nur Hamizah Zakaria, [4]Engku Shifaa Nur Sahira Engku Abdul Malik, [5]Nurul Sofea Balqis Ahmad Jefri, *[6]Khairul Anwar Amir

[1,2,3,4,5,6]Sekolah Berasrama Penuh Integrasi Tun Abdul Razak

*Corresponding author's email: tkpahang@yahoo.com

ABSTRACT

Most of us use dry cells for electronic devices. When the battery is losing its power, users will continue to just throw it away. Not many people know the methods of disposing of batteries properly after the battery runs out of power. Most of us usually tossed the batteries into the dustbin. Crucially, improper disposal of batteries causes plumbum toxic leak which lead to pollution being spread widely. When it enters the human body, it becomes toxic in our body and causes adverse health effects. Based on awareness, we want to create a new product towards Green Technology as an alternative called **ENPROSALT** as a new energy to replace the existing products. Salt cells are capable of replacing dry cells battery by producing and generating high voltage power and lasts longer. In a study that was conducted, the salt cells with a solution of certain concentration were going through the process of electrolysis. In these experiments, salt cells use two pieces of metal copper and aluminum in the electrolysis process and salt as the electrolyte. The result is electrical current can be generated. The use of the salts cell is very easy because it only requires a certain concentration of salt water connected to two electrodes. By placing the two metal sheets which represents the anode and cathode, then connected to the wires, therefore LED lights will light up. With the creation of this innovative product, we can reduce the pollution caused by improper disposal of dry cells batteries and thus makes **ENPROSALT** as a source of alternative energy.

Keywords: new energy, pollution, improper disposal, alternative energy

1. INTRODUCTION

Batteries in the modern-day world have become ubiquitous, in the sense that they provide energy for a wide range of products that are used across all segments, spanning from households to large industrial enterprises. They are also a major source of backup power for activities that require an uninterruptible supply of power. However, the average batteries have some disadvantages. One of them is that the disposal of batteries can harm and pollute the environment in numerous ways. Most of them contain cadmium, lead, mercury, copper, zinc, manganese, lithium, or potassium, which are all hazardous to the environment and also to human health. These harmful substances permeate into the soil, groundwater and surface water through landfills and also release toxins into the air when they are burnt in municipal waste combustors. Also, the manufacturing cost of batteries is very high. The cell itself consists of several components including the anode and cathode materials, the battery separator and electrolyte, and all of the metal leads, windings, and safety valves that are packaged inside. The costliest component within the cell is the cathode electrode material, which is typically a transition-metal oxide that contains cobalt or, with recent efforts to lower cost and improve stability and voltage, various ratios of manganese, aluminum, and nickel.

Thus, with thorough research, we have invented the ENPROSALT which is a short form of the words" Energy Produce by Salt". With a simple mechanism, we have made a cell which consists mainly of aluminum, copper, salt water and oxygen. As we all know salt water and oxygen are renewable energy as they can be easily obtained from around us and the metals used in the cell are much cheaper than lithium, potassium and other highly cost metals. The use of renewable resources also means that

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this battery is eco-friendlier and does not damage the environment as much as the average batteries. Hence, we believe the ENPROSALT does solve some of the problems that are brought up when using the average batteries and with more in-depth and comprehensive study this cell could revolutionize the battery industry.

2. RESEARCH'S OBJECTIVE

- To produce environmentally friendly batteries
- To make a battery utilizing from renewable resources
- To make a cheaper battery

3. MATERIALS AND METHODS

1. The items needed are:

- Activated Carbon
- Saltwater
- Cotton
- Beaker
- Voltmeter/LED/Fan
- Aluminum and Cuprum sheet/ rod


First, fill half of the beaker up with cotton. Then add a thin layer of activated carbon covering the cotton. Fill up half of the beaker with salt water which was diluted with 3 tablespoons of salt.


Next, put a sheet of aluminum with a diameter of 6 cm inside the beaker. Make sure the aluminum is touching the water, carbon and cotton. Do the same thing with a sheet of copper also with a diameter of 6cm. These metals will act as electrodes. Make sure the pair of electrodes are not touching each other.

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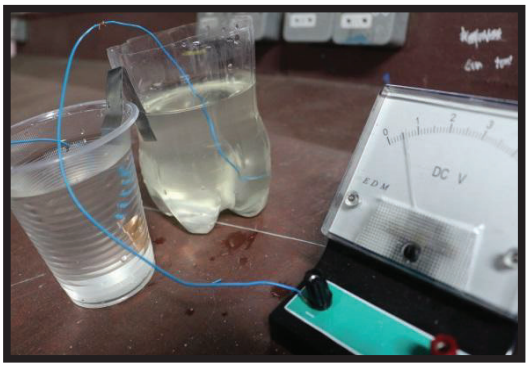
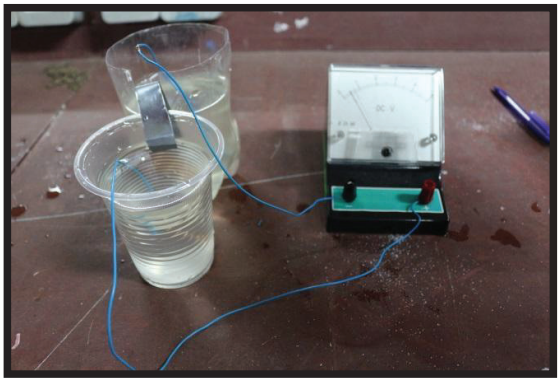
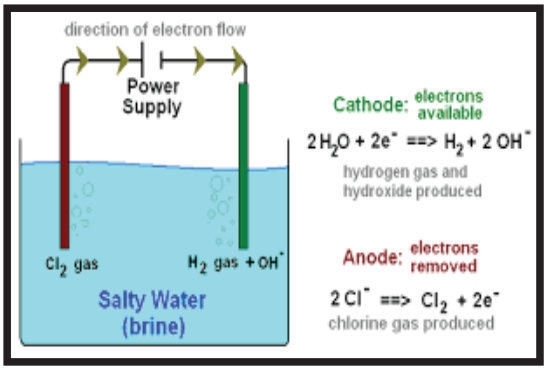
Next, connect the two electrodes with alligator wires and connect them to a voltmeter to test if there is any electric current. Remember to join the aluminum to the negative terminal while the cuprum electrode to the positive terminal. You can also test for electric current using a fan or LED.

Finally, to add more voltage repeat steps 1-3 to make more cells. Remember to join the cells in series to make sure the voltage increases.

Photo of Experiments







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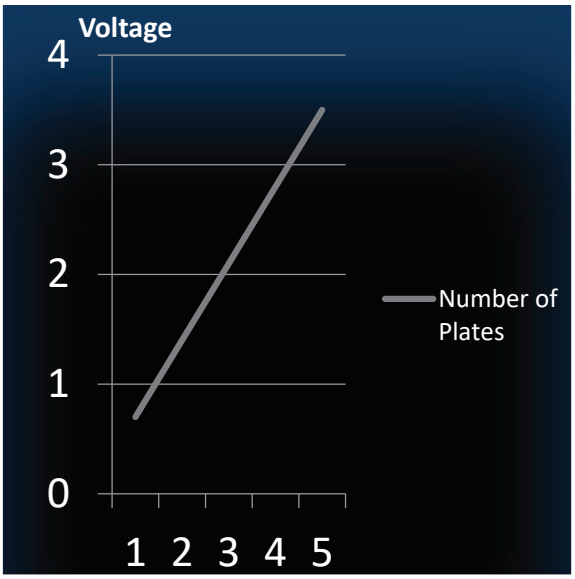
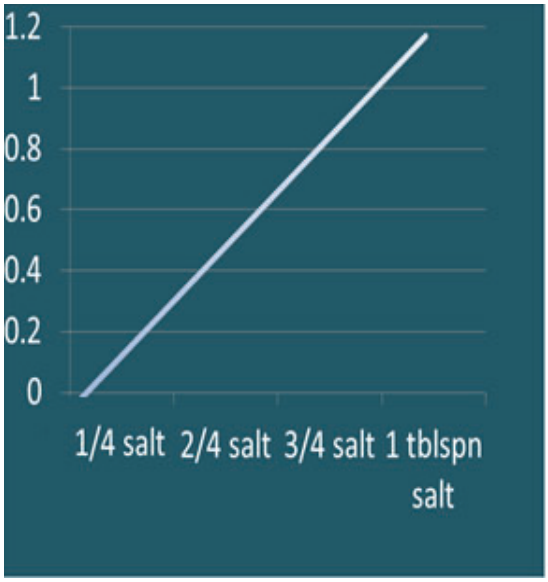
4. RESULTS AND DISCUSSION





PROJECT COST

List of items

Components	Quantity	Price (rm)
Carbon	1	(free)
Aluminum tin cans	3	1.50 / free
Salt	1 bag	free
Cuprum sheet	1 sheet	1.00
Aluminum sheet	1 sheet	1.50
Cotton	1 bag	1.00
Total		**6.00**

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4. CONCLUSION

With the creation of this innovative product, we can reduce the pollution caused by improper disposal of dry cell batteries and also reduce the use of non-renewable resources, thus making **ENPROSALT** as a great source of alternative energy.

REFERENCES

Baharin bin Aiyob, Teknologi Kejuruteraan, KBSM, Dewan Bahasa dan Pustaka. 2011. Chemistry Module, Sasbadi, Terbitan 2014

Khairul Anwar Bin Amir. Engineering Technology Teacher, SBPI Tun Abdul Razak

Maimunah bin Husien, Science PMR, Federal Hybrid Max. 2012