UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

ELECTRICITY PRODUCED FROM CITRUS FRUITS

SITI NUR AQILAH BT TAZU AZHA
2014686308 D1CS2496B
SITI NUR ATIKAH ILIA BT RAMLAN
2014844438 D1CS2496B
RAUDHAH MAZNI BT ADNAN
2014449672 D1CS2496B

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

The idea of fruits battery had been discovered for a long time ago. The reading of voltage and current in fruits had been proved by using multimeter. However, we also want to predict the value of electrical current that can be produced by fruits in mathematical way. The purpose of this project is to determine which citrus fruits produce the most electricity. The characteristics of citrus fruits include high vitamin C, fragrant aroma, thick and juicy flesh, and high of acidic content were a reason they can conduct the electricity and capable to be the power sources. This process can be used to find how much citrus fruits needed to power up small application without using the real experiment. The anticipated outcome of this experiment is the identification of the citrus fruits that could produce the highest electrical current. The findings may be useful in looking up eco-friendly power sources that could replace the current battery. From the result of this process, we can predict the value of electrical current be produced in circuit by using Kirchhoff's second law by calculation. The experiment was set up by referring LRC series circuit which consists of inductor, resistor, capacitor and citrus fruits as power sources.

1 INTRODUCTION

1.1 Research Background

Electricity will produce when a battery modified chemical energy to electrical energy by placing certain chemicals in contact with one another in a specific way. Next, electrons, is a tiny components of atoms,it travel from one kind of chemical to another under the right condition. The flow of electron can turn out electrical current that is will generate power to started electronic device such as phone and torchlight. A battery work when the right chemical was putting in the right relationship and there is boundary exists to separate between two chemicals. It will create the electrons flow when the two sides of a battery are connected by a wire or another conductor.

In 1789, Luigi Galvani was starting to discover the story of batteries called "animal electricity". He nearly success to discover the principle of the battery, however he lost it. The reaction was because of a property of the tissues as he thought. He makes associate experiment by using two dissimilar metals in contact with a moist substance to touch dissected frog legs. As a result, the muscles shrink in the frog legs due to current. Additionally, he also created countless vital discoveries once the connection between currents and magnets became known. The name of galvanometer is given in honour to her name. It is a moving coil set in a very magnetic field. The current flowing through the coil, it deflects and an attached a mirror reflects a beam of light. In fact, the first accurate electrical measuring instrument was absolute.

At the same time, Alessandro Volta as a professor in university in Padova was repeated Galvani's experiments several time with many alternative materials. Actually, he is the one of the Galvani's passionate admirer. From their experiments, he came out with a conclusion that state electricity produced because of two dissimilar metals, not from the leg of frog. The frog's leg simply acts as an indicator to discover the existence of the electricity.

In 1800, he develop the voltaic pile when intensive experimentation. The first voltaic pile comprise of a pile of zinc and silver discs. Also, a piece of cardboard that has been soaked