

# 2015 年臺灣國際科學展覽會 優勝作品專輯

作品編號	160043
參展科別	物理與天文學
作品名稱	<b>COMPARATIVE STUDY OF THE ELECTRICITY GENERATED FROM FRUIT EXTRACTS OF CALAMANSI (Citrofortunella microcarpa), CAMIAS (Averrhoa bilimbi), AND STARFRUIT (Averrhoa carambola)</b>
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## Summary

The study aimed to compare the electricity generated from the fruit extracts of calamansi, camias and starfruit.

Unripe fruits were extracted and varied percentage compositions of each extract were prepared. Wires were connected to a multi-tester (voltmeter or ammeter) to measure voltage or current that passes through.

Results revealed, that amount of voltage and electric current generated are its lowest reading at 25% and are its highest reading at 100%. Nonetheless, of the three fruit extracts, it's the calamansi that has the highest amount of voltage generated of 0.97 volt while camias has the highest amount of electric current generated of 13.98 mA.

Using ANOVA at 0.05 level of significance on the amount of voltage generated among varied percentage compositions of three extracts. However, there's a significant difference on the amount of electric generated among varied percentage compositions. Results of ANOVA statistically signify that the three different extracts could either be used as a source of voltage and that camias extract should be preferably used over the other two fruit extracts in generating electric current.

In all compositions, produced voltage is between 0.88 and 0.97 volts and current is between 3.28 and 13.98 mA. These currents produced are not enough to turn on a small light bulb having a smallest voltage capacity of 1.2 volt, but can be able to turn on a light-emitting diode (LED) that require such amount of current.

## 【評語】 160043

Comparative study of the electricity generated from fruit extracts of calamines (*Citrofortunella microcarpa*), CAMIAS (*Averrhoabilimbi*), and starfruit (*Averrhoa carambola*)

This study focuses on the green electricity generated by bio-cell-fruit electric cell. The author discovered the electric power is proportional to the acidity of fruit juice. The experiment set up is good and result is convict. It would be even better if more experiments such changing the number as size of electrodes and how long can electricity be produced by a certain amount of juice.