CAN FRUITS AND VEGETABLEAS PRODUCE ELECTRICITY?

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INTRODUCTION

Currently share of renewables in global electricity is about 30%, it means, that producing vast majority of electricity, we pollute our planet, nevertheless, over 10% of global population doesn't have access to electricity. Our goal, is to check efficiency of very ecological way of producing electricity - getting it from fruits and vegetables, and check which one produces biggest amount of electricity, in order to provide more electricity from renewable sources for worldwide society.

RESULTS

We Noticed, that potato produced the biggest amount of volts (about 0.125V from using 2 of them) which is almost 3 times more than runner up - lime (0.043V). Apple produced the smallest amount of electricity, only 0.009V

Figure 1

uncertainty of measurement - 0.001V

FRUIT	trial 1	trial 2	trial 3	average
lemon	0.003	0.022	0.023	0.016
lime	0.066	0.042	0.020	0.043
picles	0.010	0.014	0.020	0.015
apple	0.012	0.008	0.006	0.009
potato	0.151	0.105	0.118	0.125

Figure 1 presents voltage of lemon, lime, picles, apple and potato collected from 3 trials, and their average

average voltage produced by every crop

Figure 2

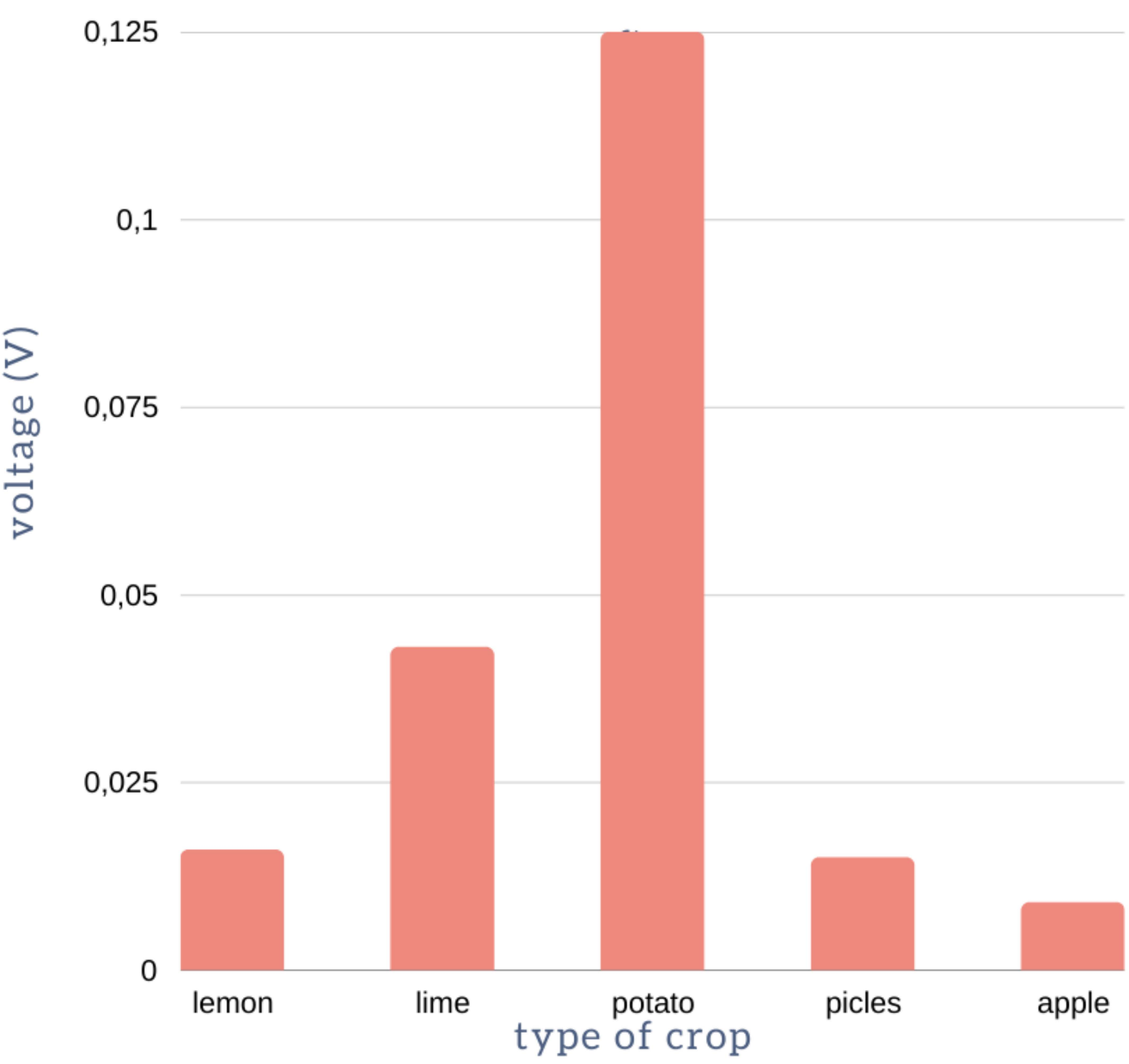
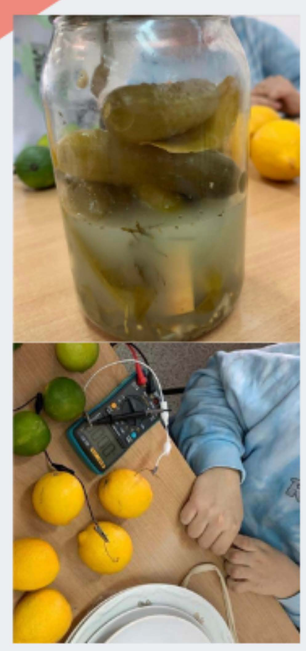


Figure 2 presents average voltage produced by all of the following: lemon, lime, potato, picles, apple

METHODS



things needed:
- 6 potatos
- 6 apples
- 6 lemons
- 6 limes
- 6 pickles
- 15 copper cables
- 10 copper bars
- 10 zinc rods

by putting copper cable into two fruits and then another one between them we measured how much volts are produced. We conducted 3 trials

DISCUSSION & REFERANCES

As this topic is very interesting and popular among scientist we found other scientific works, that got really interesting ideas. Project called „ Which fruit or veggies conduct the most electricity?" [1] by Festus Shinyemba showed similar results to ours. None of fruits got over 1V result, but Lemons and Potatoes got the highest results, both over 0.95V, while apple produced the lowest amount of electricity.

Another project called „Analyzing voltages produced in different sizes of fruits and vegetables" [2] conducted by Aidan Singh in 2020 got really interesting results. In general numbers they got were much higher than ours, and the biggest amount of electricity was produced by apple (almost 2V) while in our project it was the least efficient fruit. We have also noticed that this project has really interesting methods, as voltage is counted for not only whole fruits, but also for small slices, to check whether volume of fruit affects electricity produced.

CONCLUSSIONS

Even though producing electricity from crops is very easy and ecological idea, we have found, that it's not the most efficient way of obtaining electricity, because the crop that produced the most of it (potato) would only provide about 3% of electricity needed to charge a phone (5V). However, we still encourage everybody to produce electricity from crops, because it's fun, cheap and easy way to have your own power plant and by the way help our planet!

LINKS

1. https://www.sciencexpo.org.za/event/yess/projectview/5172.html - 05.05.2023
2. https://cdnsm5ss14.sharpschool.com/UserFiles/Servers/Server_1970260/File/News/School%20Updates/Aidan%20Singh%20Presentation1.pdf - 05.05.2023