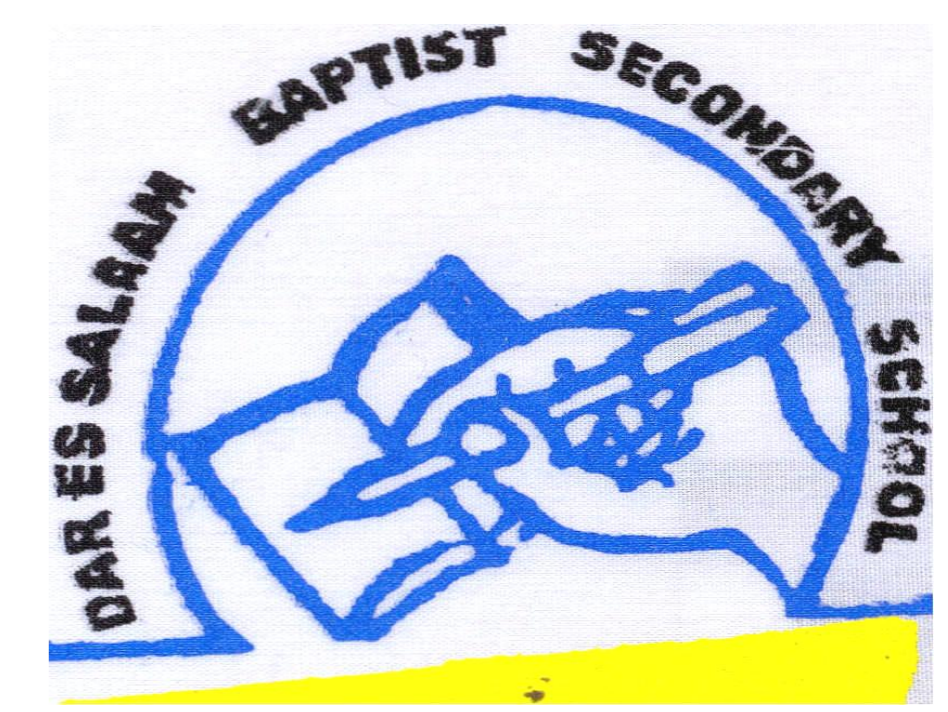




Using Egg Shells As Natural Fertilizer

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19. DSM Baptist



Introduction:

Now days people are eating more eggs than at previously due to the increase in technology in production of hybrid organisms. The results of this production bring about the environment pollution due to accumulation of egg shells as wastes.

The aim of project is to recycle the egg shell by natural acids from different fruits and the resulted compound then will be used as the fertilizers. The egg shells contains calcium carbonate hence it contains some plant nutrients such as calcium, carbon and nitrogen which are very important in plant growth. Also the project will result in production of carbondioxide which can be used for various ways.



Methods:

Apparatus used in this projet where simple apparatus such as glass bottles, knife, mortal pestle, rubber bands.

Materials where acids containing fruits such as oranges, lemons, unripe mangoes, tamarindo (ukwaju) and the egg shells.

Fruits was tested to discover how can we obtain the fruits containing stronger acids which may dissolve completely the egg shells.

The mentioned fruits was peeled to determine weather the juice, of acids.

Then one solution was made which comprises equal volume of the acid cotaining fruits which were oranges, lemons, grapes, unripe mangoes and tamarindo

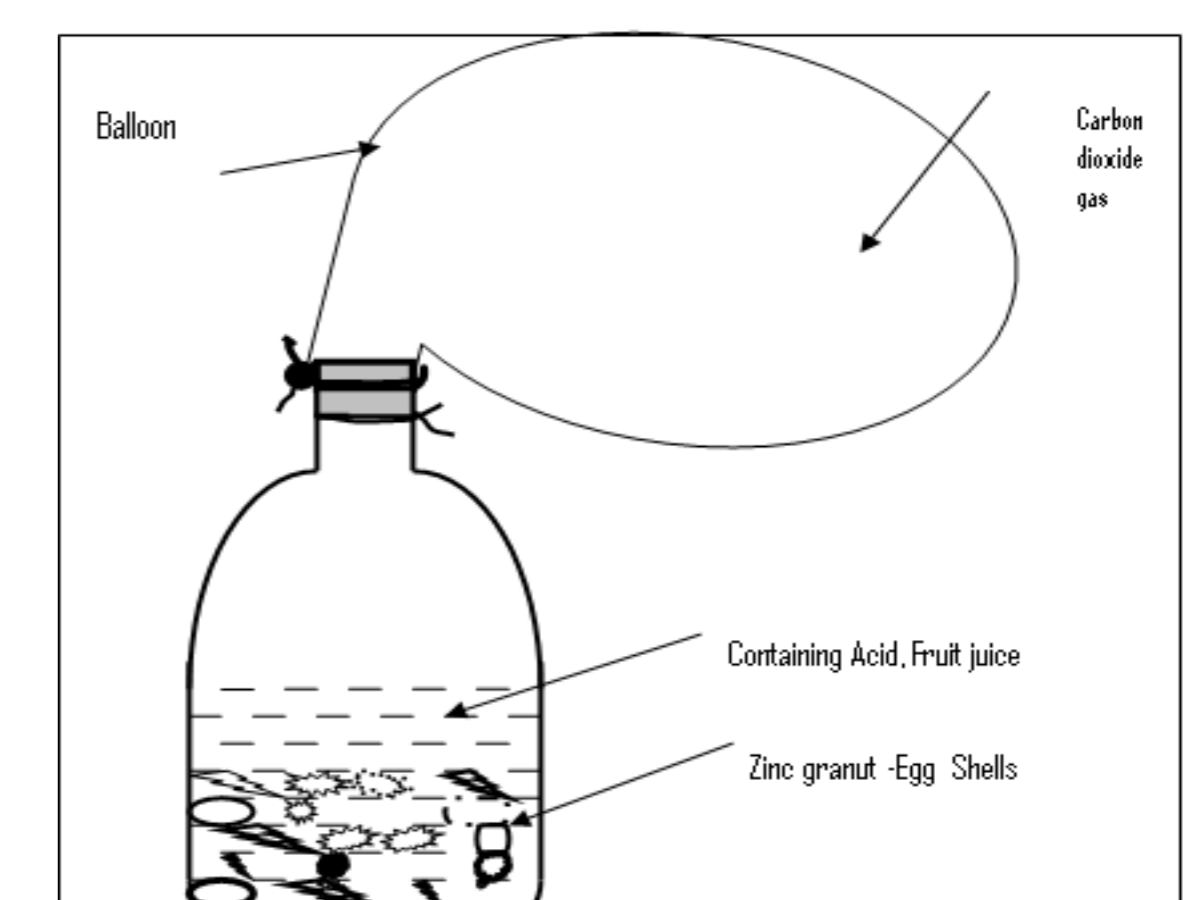
The egg shells broken into small pieces wa introduced in both bottles.

It was then observed for 24 hours.

The solution made from juices of various fruits proved to be containing a stronger acids, it dissolved the egg shells better than the individual fruits.

Then the solution in (vi) above was prepared in another fresh apparatus and the balloon was fixed as in the diagram below.

After collection of the gas the recidue was taken to test for fertilizers, it was used to grow **maize**.



By considering our environment the natural acids from fruits such as oranges, lemons and citrus fruit in general. The pH of every fruit juice will be measured and then the mixture of fruits will results into the formation of solvent, the egg shells will be then used as the solute. After dissolving the formed heterogenous solution will be tasted to grow plants as the nutrients. The carbondioxide gas will be collected into balloons for various uses. It will be tested to kill insects which respire aerobically and are hamfull to man.

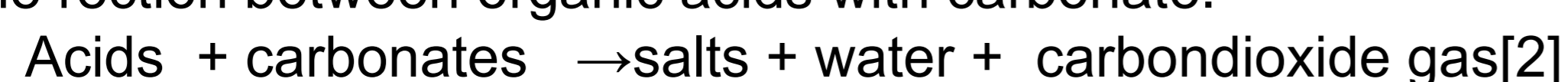
Results:

The results obtained was the egg shells was dissolved in acids containing fruits and the gas was collected in the balloon. The compound formed was tested in growing maize. The plant with the formed compound grew faster than the one without it.

Conclusions:

The fruits contains the organic acids which includes 2-hydroxypropanoic-1,2,3-tricarboxylic acids commonly known as citric acids[1]. Grapes contains tartaric acids as well as ascorbic acids. The egg shells contains some calcium carbonate. By mixing juices results into complex acids which will help to react with calcium carbonate in the egg shells resulting into three products which are salts (which used as the natural fertilizers) water as well as carbondioxide gas collected into the ballon [2]. The gas can be conformed by using the lime water which turns to milk when mixed with it.

The complex equations for our project is beyond our scope but simply it based in the rection between organic acids with carbonate.



This projects it can help to eradicate egg shells as the waste product in our environment

Manufacturing plant natural fertilizers and collection of carbondioxides gas which can be used for various functions.

Will provide more market to citrus fruits since when It uses increase.

References:

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We would like to aknowledge God for taking us this far.

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