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JOGULAMBA GADWAL DIST.TS

AFFILIATED TO PALAMURU UNIVERSITY

REACCTREDETED –"B" BY NAAC

Department Of Chemistry

Academic Year: 2016-2017

STUDENT STUDY PROJECT

ON

RATE OF FUNDAMENTAL OF WHEAT FLOUR

Sl.no	Name	Group	Roll No.
1	L.RAJU	MPC II YEAR	302415441543
2	K.JAYAPRAKASH BABU	BZC III YEAR	302414445514
3	B.RJU	BZC III YEAR	302414445559
4	MAMATHA	MZC III YEAR	302414457001
5	K. YUGENDRA	BTBC III YEAR	302414572007

PROJECT GUIDED BY

K.BHASKAR

Lecture in chemistry

Department in charge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

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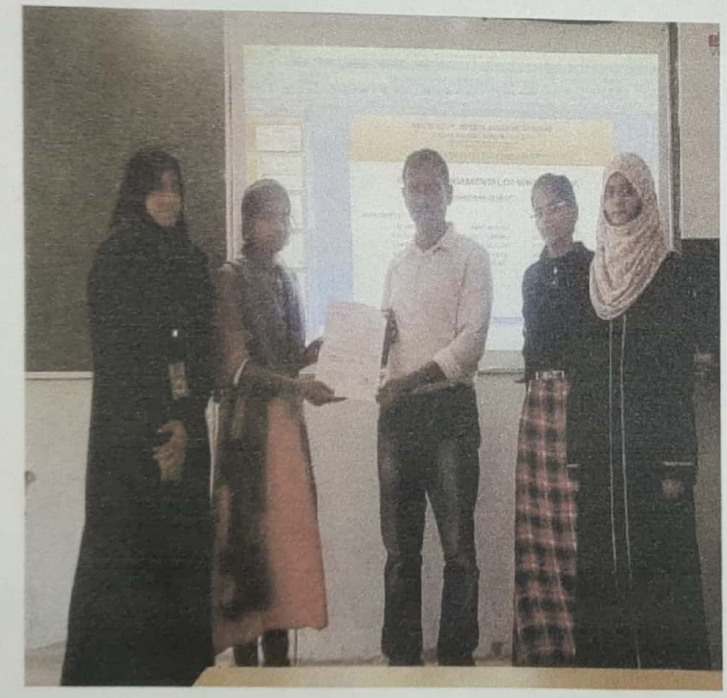

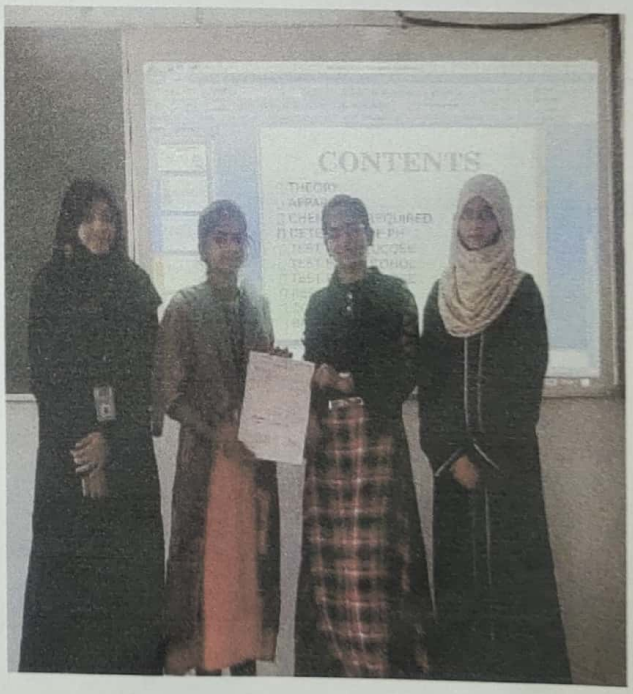

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Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

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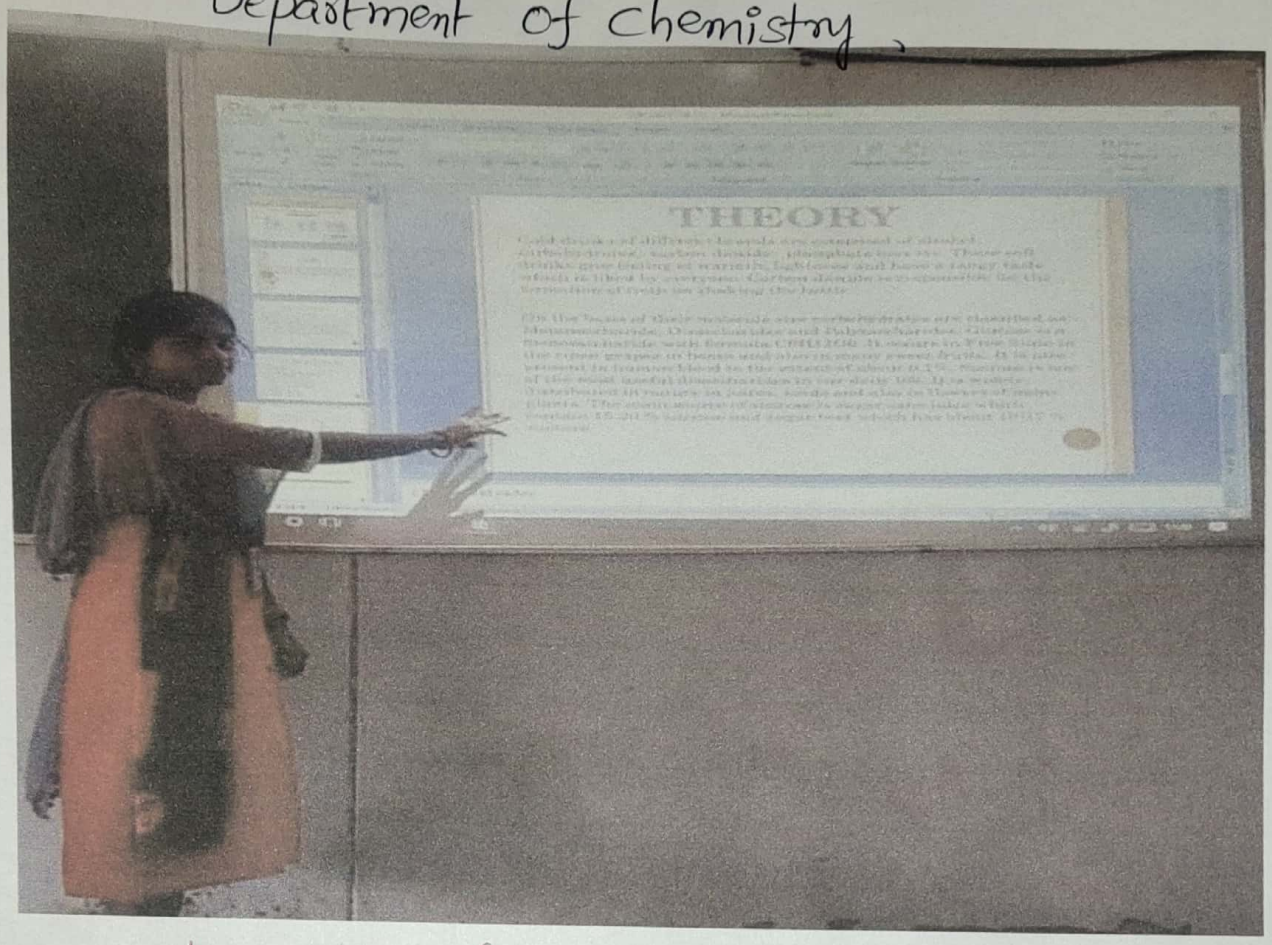
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

M.A.L.D Govt. Degree College, Gadwal

Department of Chemistry,



Characteristics(%)	Resultant att	Whole-Wheat flour
Ash	1.31	1.68
protein	10.80	10.60
Dry gluten	9.90	9.90
Ether extractives	3.20	2.30
Crude fiber	2.09	2.24
Starch	52.20	54.50
Damaged starch	7.00	14.50
Water-absorption capacity	62.80	73.50

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TITIE:-

Rate Of fundamental of Wheat flour.

Rate OF Fermentation of Wheat Flour

Abstract

To compare the rate of fermentation of given sample of wheat flour gram flour, rice flour and potato using yeast

the purpose of the experiment is - to compare the rate of fermentation often given sample of wheat flour, gram flour, rice flour and patatoes, I because interested in this idea when i saw some experiments on fermentation and wanted to find out some scientific facts about fermentation. the primary benefit of fermentation is the conversion of sugars and other carbohydrates e.g:- converting juice into wine, grain into beer, carbohydrates into carbon dioxide to leave bread, and sugars in vegetable into preservative organic acids

Introduction

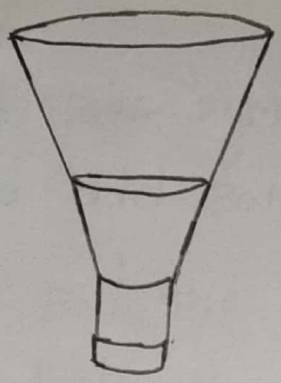
fermentation is a metabolic process serving for some microorganism to get energy though digestion of simple fermentable sugar, Mostly glucose and fructose In bakery fermentation, the production of carbon dioxide (CO_2) is requised as it servers for fluffing

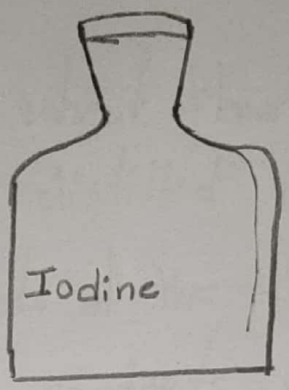
up the dough. the principle of rheological apparatus used for the evaluation of fermented dough properties during its maturation. is the measurement of gaseous volume or pressure produced. fermentograph -SJA (sweden) or advanced type Rheofermentometer (chopin, France) can describe this dough behaviour. the purpose of fermentation is to bring dough to the optimum condition for baking.

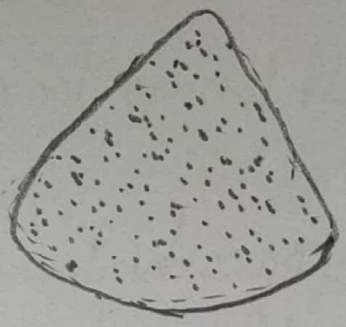
fermentation typically is the conversion of carbohydrates to alcohols and carbon dioxide or organic acids using yeasts, bacteria, or a combination thereof under anaerobic condition. A more restricted definition of fermentation is the chemical conversion of sugars into enthanol. the science of fermentation is known as zymology. fermentation usually implies that the action of microorganism is desirable and the process is used to produce alcoholic beverages such as wine, beer, and cider. fermentation is also employe in preservation techniques to create lactic acid in sour food such as sauerkraut, dry sauerkraut, kimchi and yoghurt, or vinegar for use in picking foods

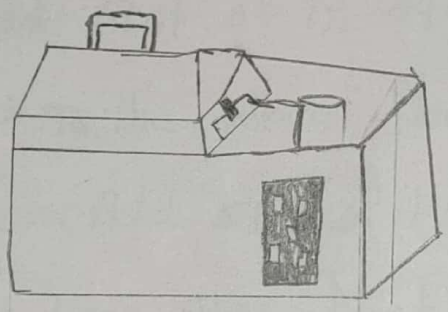
Wheat flour, gram flour, rice and potatoes contains starch as the major constituent. starch present in these food material is first brought in to solution in presence of enzyme diastase. starch undergoes fermentation to give Maltose. starch. give blue-violet colour with iodine whereas Product of fermentation starch donot give any characteristic colour. when the fermentation is complete the reaction Mixture stops giving blue -violet colour with iodine solution. By comparing the time required for completion of fermentation of equal amounts of different substance containing starch. the rates of fermentation can be compared the enzyme distase is abtained by germination of Moist baseley seeds in dark at 15 degree celsius. When the germination is complete the temperature is raised to 60 degree celsius to stop further growth the seeds are crushed into water and filtered contains ezyme diastase and is called Malt extrast

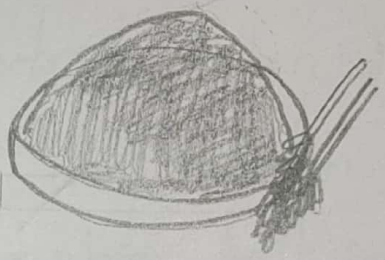
Material Required

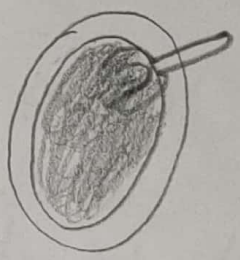


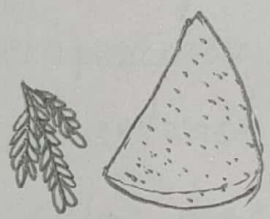


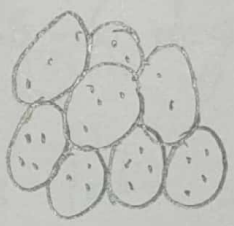


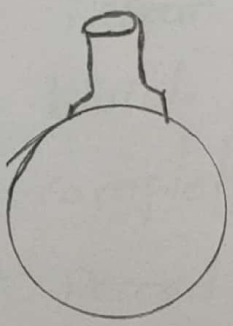


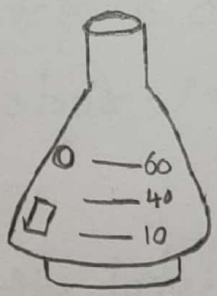


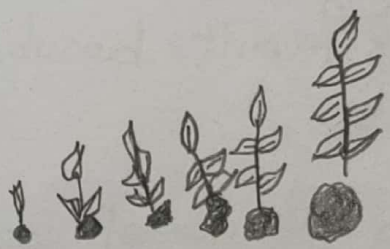












Procedure:-

•# Take 5gms of wheat flour in 100 ml conical flask and add 30ml of distilled water

•# Boil the contents of the flask for about 5 Minutes

•# filter the above contents after cooloning flask. Add 5ml of 1% aq. Nacl solution

•# To the wheat flour extract, taken in a conical flask. Add 5ml of 1% aq. Nacl solution

•# keep this flask in a water bath Maintained at a temperature of 50-60 degree celsius. #dd 2ml of Malt extract

•# After 2 Minutes take 2drops of the reaction Mixture and add to diluted iodine solution.

•# Repeat step 6 after every 2 Minutes, when no bluish colour is produced the fermentation is complete.

•# Record the total time taken for completion of fermentation

•# Repeat the experiment with gram flour extract rice flour extract, potato extact and record the observation

observation

Time required for the fermentation

Wheat flour - 10 hours
Gram flour - 12.5 hours
Rice flour - 15 hours
Potato - 13 hours

Conclusion

Rice flour takes maximum time for fermentation and wheat flour takes the minimum time for fermentation

Reference.

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Related projects

* To prepare pigments and poster paints (prepare-pigments.php)
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* electrochemical cell (electrochemical-cell.php)

Thanking you

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M.A.L.D. Govt. Arts & Science College
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Department Of Chemistry

Academic Year: 2017-2018

STUDENT STUDY PROJECT

ON

CONTENT OF COLD DRINKS AVAILABLE IN THE MARKET

Name	Name of Student	Group	Roll No.
1.	G.NAVEEN	MPC III YEAR	302415441525
2.	KISHORE	BZC III YEAR	302415445528
3.	M.NEETHA	MZC III YEAR	302415457002
4.	B.KEERTHANA	MPC I YEAR	18033024441002
5.	SHAIK NEHA	MPC II YEAR	17033024441035

PROJECT GUIDED BY

K.VINODA

Lecture in chemistry

Department Incharge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
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STUDENT STUDY PROJECT

ON

CONTENT OF COLD DRINKS AVAILABLE IN THE MARKET

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Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

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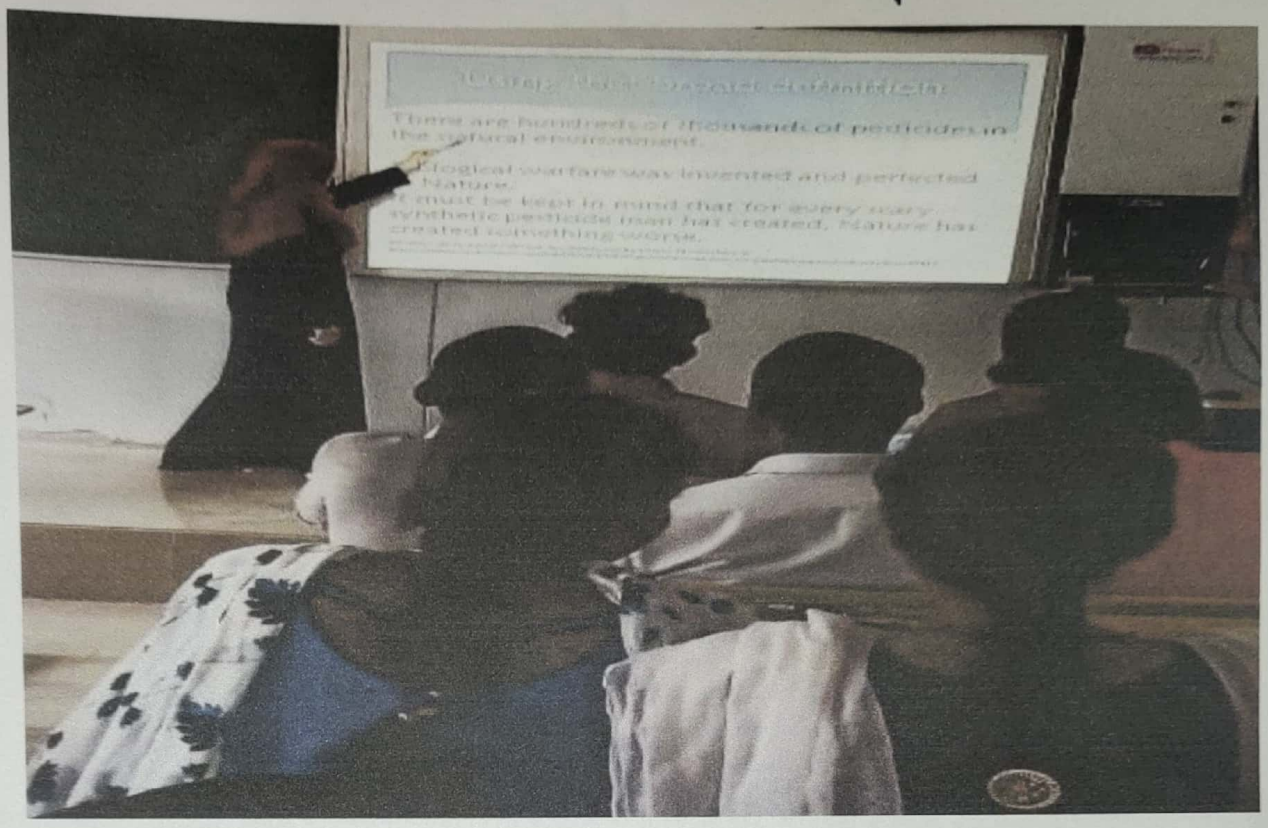
Department of Chemistry.



→ cold-drinks of different brands are composed of Alcohol, carbohydrates, Carbondioxide, phosphate ions etc. These soft drinks gives feeling of warmth, lightness and have a tangy taste which is liked by overone.

Different type of cold-drinks are

1) pepsi 2) coca-cola 3) Thums-up 4) sprite

5) Limca 6) Fanta etc.

Department in charge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

Chemistry Project

Title :-

Content Of Cold Drinks

Available In the Market

Content of Cold Drinks Available In the Market

Abstract :-

Aim is to find the content of Cold Drinks Available in the Market.

Cold drinks of different brands are composed of alcohol, carbohydrates, carbondioxide phosphate ions etc. These softdrinks give feeling of warmth, lightness and have a tangy tastewhich is liked by everyone. Carbon dioxide is responsible for the formation of froth on shaking the bottle.

The Carbon dioxide gas is dissolved in water to form carbonic acidwhich is also responsible for the tangy tastewhich is liked by everyone. Carbon dioxide is carbohydrates are the naturally occuring organic compounds and are major source of energy to our body. General formula of carbohydrates is $C_x(H_2O)_y$.

On the basis of their molecule size carbohydrates are classified as :- Monosaccharide, Disacchandes and.

Polysaccharides. Glucose is a monosaccharide with formula $C_6H_{12}O_6$. It occurs in free state in the ripen grapes in bones and also in many sweet fruits. It is also present in human blood to the extent of about 0.1%. Sucrose is one of the most useful dissacharides in our daily life.

It is widely disturbed in nature in juices, seeds and also in flowers of manyplants. The main source of sucrose is sugar cane juice which contain 15-20% sucrose and sugar beet which has about 10-17% sucrose. The molecular formula of sucrose is $C_{12}H_{22}O_{11}$. It is produced by a mixture of glucose and free dose. It is non-reducing nature whereas glucose is reducing cold drinks are a bit acidic in nature and their acidity can be measured by finding their PH value. The pH values also depend upon the acidic contents such as citric and phosphoric acid.

Detection of PH :-

1-2 drops of the sample of cold drink of each brand

was taken and put on the PH paper. The change in the colour of PH paper was noticed and was compared with the standard PH scale.

Observation :-

Sl.No	Name of the Drink	observation	Conclusion
1.	Coco cola	Pink	1-2
2.	Sprite	Orange	3
3.	Limca	Pinkish	3-4
4.	Fanta	Light pink	2-3

Inference

Soft drinks are generally acidic because of the presence of citric acid and phosphoric acid. PH values of cold drink of different brands are different due to the variation in amount of acidic contents.

Test for Carbon Dioxide

Experiment :-

As soon as the bottles were opened, one by one the sample was passed through lime water. The lime water turned milky.

Observation:-

Sl.NO	Name of the Drink	Time Taken (Sec.)	Conclusion.
1	Coco Cola	26.5	Co_2 is present
2.	Sprite	21	Co_2 is present
3.	Limca	36	Co_2 is present
4.	Fanta	35	Co_2 is present

Inference :-

All the soft drinks contain dissolved carbon dioxide in water. The carbon dioxide (Co_2) dissolves in water to form carbonic acid, which is responsible for its tangy taste.

CHEMICAL REACTION INVOLVED

$$Ca(OH)_2(s) + Co_2(g) \longrightarrow CaCo3(s) + H_2O(s)$$

Test for Glucose :-

Glucose is a reducing sugar acid. Its presence is detected by the following test:-

1. Benidicts's Solution Test :-

A small sample of cold drinks of different brands was taken in a test tube and a few drops of Benedict's reagent were added. The test tube was heated for few seconds. Formation of reddish colour confirms the presence of glucose in cold drinks.

Observation :-

Sl.NO	Name of Drink	observation	Conclusion
1.	Coca Cola	Reddish Brown Precipitate	Glucose present
2.	Sprite	Reddish Brown Precipitate	Glucose present
3.	Limca	Reddish Brown Precipitate	Glucose present
4.	Fanta	Reddish Brown Precipitate	Glucose present

Inference all the samples gave positive test for glucose with Benedict's reagent. Hence all the drinks contain glucose.

Test for Alcohol

Samples of each brand of cold drinks are taken in sample test tube and iodine followed by potassium iodide and Sodium hydroxide (NaOH) solution is added to each test tube. Then the test tube are heated in hot water bath for 30 minutes yellow coloured precipatate confirmed the presence of alcohol in cold drinks.

observation :-

Sl.NO	Name of the Drink	Observation	Conclusion
1.	Coca Cola	Yellow	Alcohol present
2.	Sprite	Yellow	Alcohol present
3.	Limca	Yellow	Alcohol present
4.	Fanta	Yellow	Alcohol present

Conclusion :-

- After conducting several test, it was concluded that the different brands of cold drinks namely.

1. Coca cola. 2. Sprite 3. Limca. 4. Fanta All contains glucose, alcohol sucrose, phosphate, ions and carbon dioxide. All are in acidic in nature.

on comparing the PH value of different brands coca cola is most acidic and limca is least acidic of all the four brands taken. PH value of coca cola is nearly equal to disinfectant which is harmfull for body.

Carbon dioxide Among the four samples of cold drinks taken - sprite has maximum amount of dissolved carbon dioxide and fanta has minimum amount of dissolved carbon dioxide.

Disadvantages of Cold Drinks :-

1. Soft drinks are little more harmfull than sugar solution. As they contain sugar in large amount which cause "diabetes".

2. Soft drinks can cause weight gain as they interfere.

with the body's natural ability to suppress hunger feeling.

3) Soft drinks have ability to dissolve the calcium so they are also harmfull for our bones.

4) Soft drinks Contain "phosphonic acid" which has a pH of 2.8. So they can dissolve a nail in about 4 days.

5) For transportation of soft drinks syrup the commercial truck use the hazardous matter place cards reserved for highly consive material.

6). Soft drinks have also ability to remove blood so they are very harmfull to our body.

Uses Of Cold Drinks

1) Cold drinks can be used as toilet cleaners.

2) They can remove rust spots from chrome car humpers.

3) They clean corrosion from car battery terminals.

4) Soft drinks are used as an excellent 'detergent' to remove grease from clothes.

5) They can loose a rusted bolt.

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Department Of Chemistry

Academic Year: 2018-2019

STUDENT STUDY PROJECT

ON

STERILIZATION OF WATER BY USING BLEACHING POWDER

S.No	Name of Student	Group	Roll No.
1	B.Shivudu	MPC III Year	16033024441005
2	T.Naresh	BZC III Year	16033024445551
3	K.Navitha	MZC III Year	16033024457011
4	Md.Ashwaq	MZC III Year	16033024457015
5	Reshma	BZC I Year	18033024445535

PROJECT GUIDED BY

Mr.HariBabu

Asst.Professor of Chemistry

Department in charge

Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

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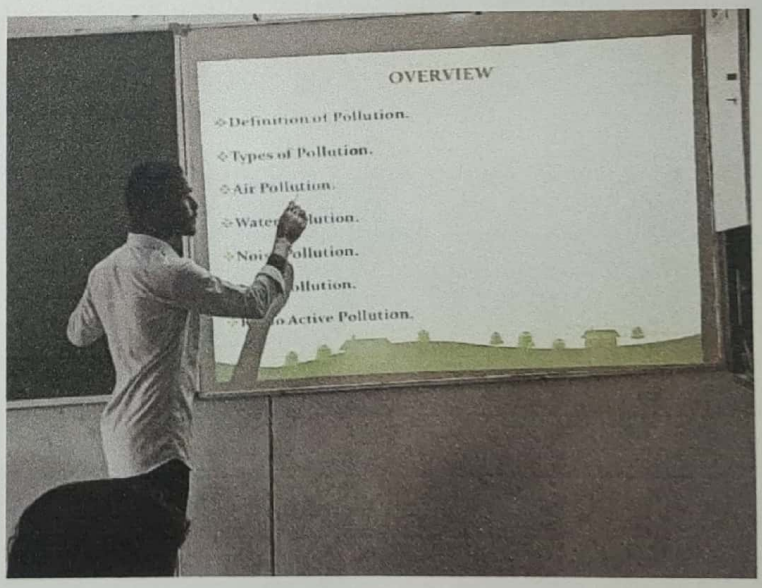

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Department of Chemistry
M.A.L.D. Govt. Arts & Science College
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M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

chemistry project

Title :-

Sterilization of water by using Bleaching powder

STERILIZATION OF WATER BY USING BLEACHING POWDER

ABSTRACT:-

This project look at the technique called sterilization of water by using Bleaching powder, which is used to purify waters and make it fit for drinking.

Water is an important and essential ingridient in our quest for survival on this planet. It is very essential for carrying out various metabolic processes in our body and also to carry out Haemoglobin through out the body. A daily average of 1 gallon per man is sufficient for drinking and cooking purposes. with the increasing world population, the demand for drinking waters has also increased dramatically and therefore it is very essential to identify resources of water from the which we can use water for drinking purposes. since many available resources of water do not have it in drinkable form, in order to fulfill the demand of waters, it needs to be purified and supplied in an orderly and systamatic way.

PURIFICATION OF WATER:-

There are many methods of for the purification of water such as;

1) Boiling

2) Filtration
3) Bleaching powder treatment
4) SODIS (sodium water disinfection).

NEED FOR A STABLE PURIFICATION TECHNIQUE.

Therefore we need a purification technique which can be used anytime and anywhere, does not require the use of any third party content and which is also economically feasible on both normal scale and large scale. Hence, we look at the method of purification of water by using technique of treatment by bleaching powder commonly known as "chlorination."

Introduction:-

In 1854 it was discovered that a chloera epidemic spread through water. The outbreak seemed less severe in areas where sand filters were installed. British scientist john snow found that the direct cause of the outbreak was water pump contamination by sewage water. He applied chlorine to purify the water, and this paved the way for water disinfection. This discovery led to governments starting to install municipal water filters (sand filters and chlorination). so, in the 1890's America started building large sand filters to protect public health. These turned out to be a success. Instead of slow sand filtration, rapid sand filtration was now applied. subsequently, Dr. fuller found that rapid sand filtration worked much better when it

Preceeded by coagulation and sedimentation techniques.

But the victory obtained by the invention of chlorination did not last long. After sometime the negative effects of this element were discovered. chlorine vaporizes much faster than water, and it was linked to aggravation and cause of respiratory disease. water experts started looking for alternative water disinfectants. In 1902 calcium hypo chlorite and ferric chloride were mixed in a drinking water supply in Belgium, resulting in both coagulation and disinfection. To this day, Bleaching powder remains the mostly common used drinking water disinfectant. In addition to controlling disease-causing Organisms, chlorination offers a number of benefits including.

→ Reduces many disagreeable tastes and odors.
→ eliminates slime bacteria, moulds and algae that commonly grow in water supply reservoir.
→ Removes chemical compounds that have unpleasant tastes and hinder disinfection.
→ Helps remove iron and manages from raw rater.

For more than a century, the safety drinking water supplies has been greatly improved by the addition of bleaching powder. However bleaching powder also react with the organic matter, naturally present in air, water, such as decaying leares thus forming a group of chemicals known as disinfecting Bi-products. when used with the modern water filtration methods, chlorine is effective against virtually all Micro-Organisms.

Bleaching powder and it's preparation:-

Bleaching powder (or) calcium hypochlorite is a chemical compound with formula $Ca(ClO)_2$. This chemical is considered to be relatively stable and has greater available chlorine than sodium hypochlorite (liquid bleach). It is prepared by either "ca" process or "ala" process.

calcium process:

$$2Ca(OH)_2 + 2Cl_2 \longrightarrow Ca(ClO)_2 + CaCl_2 + 2H_2O.$$

sodium process:

$$2Ca(OH)_2 + 3Cl_2 + 2NaOH \longrightarrow Ca(ClO)_2 + CaCl_2 + 2H_2O + 2NaCl.$$

What are the actual processes involved in disinfecting and purifying waters?

The combination of following process is used for municipal drinking waters treatment worldwide:

1) Pre-chlorination - for algae or any biological growth control.
2) Aeration - Removal of dissolved iron and Manganese.
3) coagulation - for Flocculation.
4) coagulation aids also known as polyelectrolyte's - to improve coagulation and for thicker floc formation.
5) Sedimentation - For solids preparation i.e., removed of suspended solids trapped in the floc.
6) Filtration - For removal of carried over floc.
7) Disinfection - For killing bacteria.

Out of these processes, the role of bleaching powder is only in the last step i.e., For disinfection of waters.

Activity:-

Aim:- To determine the dosage of bleaching powder required for sterilization or disinfection of different samples of water.

Requirements:- Burette, Titration flask, 100ml graduated cylinder, 250ml measuring cylinder, weight flask, (BOX), glazed tile, glass wool. Bleaching powder, Glass wool, 0.1N $Na_2S_2O_3$ soln, 10% KI soln, different samples of H_2O, starch soln.

Pre-Requisite knowledge:

1) Bleaching powder when dissolved in contains dissolved chlorine, liberated by the action of bleaching powder with the water. $Ca(OCl)_2 + H_2O \longrightarrow Ca(OH)_2 + Cl_2$.

2) The amount of chlorine is present determinated by the treating a known volume with excess of 10% KI soln, when equivalent amount of I2 is liberated. The I2, thus liberated is then estimated by titrating it against a standard soln of sodium thiosulphate, using starch soln is as indicator.

$$Cl_2 + 2KI \longrightarrow 2KCl + I_2$$

$$2Na_2S_2O_3\ I_2 \longrightarrow Na_2S_4O_6 + 2NaI.$$

Procedure:-

1) preparation of Bleaching powder soln weigh accurately 2.5g bleaching powder and transfer it to a 250ml conical flask. Add about 100ml of distilled water. stopper the flask and shake it rigorously. The suspension thus obtained is filtered through glass wool and the filtrate is diluted with water to make the volume 250ml. The soln obtained is 1% Bleaching powder solution.

2) Take 20ml of Bleaching powder solution in a stoppered conical flask and add it to 20ml of 10% KI soln stopper the flask and shake it rigorously. Titrate the solution against 0.1N $Na_2S_2O_3$ soln taken in the burette. when the soln in the conical flask becomes light yellow in color, add about 2ml starch soln. The solution now becomes blue in color. continue titrating till the blue color just disappears. Repeat the titration to get a set of three concordant readings.

Observation:-

→ volume of bleaching powder sol. taken 20ml.
→ volume of KI solution add 20ml.
→ volume of different samples of water 100ml.

Titration Table for Distilled water.

Sr.No	Initial Reading	Final Reading	Final value of 0.2N $Na_2S_4O_6$ sol. used	Mean vol. (ml)
1)	2.0	10.1	8.1	
2)	10.1	18.4	8.3	8.2
3)	18.4	26.6	8.2	

Titration Table for Tank water

Sr.No	Initial Reading	Final Reading	Final vol. of 0.2N $Na_2S_4O_6$ sol. used	Mean vol. (ml).
1)	15.1	25.2	10.1	
2)	25.2	35.2	10.0	10.1
3)	35.2	45.4	10.2	

Titration Table for pond water.

Sr.NO	Initial Reading	Final Reading	Final vol. of 0.2N $Na_2S_2O_4$ sol. used (ml).	Mean vol. (ml).
1)	7.2	12.1	4.9	
2)	12.1	16.9	4.8	4.8
3)	16.9	21.9	4.7	

calculations:-

Tank water (sample I):-

→ Amount of Bleaching powder used to disinfect 100ml of tap water = (8.2 − 10.1) ml of 0.2 N of $Na_2S_4O_6$ soln = 1.9ml of 0.2al of $Na_2S_4O_6$ soln.

→ since 250ml of Bleaching powder soln contains 2.5g of bleaching powder.

→ Thus, 1ml of Bleaching powder soln contain bleaching powder = 2.5/250 = 0.01g.

→ Also, 20ml of Bleaching powder soln = 8.2ml of 0.2N of $Na_2S_2O_3$.

→ volume of Bleaching powder soln is used to disinfectant 100ml of water = 1.9 x 20/8.2ml.

1.9 x 20/8.2ml of Bleaching powder soln = 1.9 x 20 x 0.01 /8.2(gm) Bleaching powder.

→ Amount of bleaching powder used to disinfect 1 ltr of water = 1.9 x 20 x 0.01 x 1000 /8.2 x 100 = 0.4634 gms.

Pond water (sample II):-

Amount of Bleaching powder used to disinfect 100ml of water.

= (8.2 − 4.8)ml of 0.2N $Na_2S_2O_3$ solution

$= 8.4$ ml

Accordingly,

volume of $Ca(OCl)_2$ soln required to disinfect 1 ltr of water.

$= 8.4 \times 20 \times 0.01 \times 1000 / 8.2 \times 100$

$= 0.8293$ gms.

Result:-

Amount of the given samples of bleaching powder required to disinfect one litres of water.

samples I = 0.4634 gm

samples II = 0.8293 gm.

since amount of bleaching powder required for disinfecting POND WATER is more than that of required for TANK WATER, thus it can be concluded that former contains more impurities.

conclusion:-

while household bleaching solutions are widely distributed but it is not recommened to use it for household water treatment. If bleach is used for household water treatment system, concentration should be regularly checked and proper dosage strategy should be dereloped recommened by authorized Organizations.

→ Bleaching powder water treatment is useful in disinfecting water in places or conditions where boiling method cannot be practised.

Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

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Department Of Chemistry

Academic Year: 2019-2020

STUDENT STUDY PROJECT

ON

PRESENCE OF INSECTISIDES OR PESTICIDES IN VARIOUS FRUITS AND VEGETABLES

S.No	Name of Student	Group	Roll No.
1	PG.SandyaRani	BZC II Year	18033024445032
2	K.Swetha	BZC II Year	18033024445017
3	M.Ifthekar	BZC II Year	18033024445026
4	Md.Musthak	BZC II Year	18033024445029
5	P.Bhaskar Reddy	BZC II Year	18033024445031

PROJECT GUIDED BY

Mr.HariBabu

Asst.Professor of Chemistry

Department in charge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

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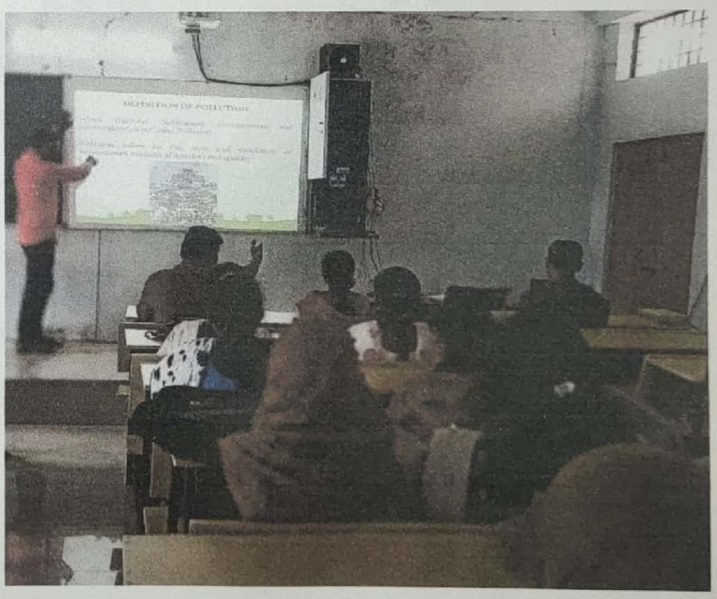


Department in charge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
GADWAL - 509 125

NAME OF THE PROJECT WORK.

PRESENCE OF INSECTICIDES OR PESTICIDES IN VARIOUS FRUITS AND VEGETABLES

PRESENCE OF INSECTICIDES OR PESTICIDES IN VARIOUS FRUITS AND VEGETABLES.

ABSTRACT :

To study the presence of insecticides or pesticides (Nitrogen containing) in various fruits and vegetables.

THEORY :

In the decade, there has been a tremendous increase in the guids of various crops to meet the demand of our growing world population. This great feat has been achieved by adopting new methods of forming and by expensive use to fertilizers and insecticides.

A pesticides is any substance is mixture of substance intended for paeventing, destroying repelling or mitigating any pest. A pesticides may be a chemical substance, biological agent antimiolbal disinfectance or device used against any pest. pests includes insects, plant pathogens insects, molluscs, birds, mammals, fish nematodes and microbus that destroy paopeaty, spread disease oa aae a vector for diseases or cause a nuisance. Although

there are also drawbacks, such as potential to humans and animals. The term includes substance inteded for use as a plant growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the praemature fall of fruit and substance applied to crops either before or after harvest to protect the commodity from deterioration during storage and transpost.

HISTORY

Since before 20BC, humans have utilized pesticides to protect their crops. The first known pesticides was elemental sulphur dusting used in ancient summer about 4500 years ago in ancient Mesopotamia. By the 15th century, toxic chemicals such as arsenic, Mercury and led being applied sulphate was extracted from tabacco leaves for use an insecticides. The 19th century saw the introduction of two more natural pesticides, pyrethrum, which is derived from chrysanthemums, rotenone which is derived from the roots of tropical vegetables.

In 1960s it was discovered that DDT was preventing many fish eating birds from reproducing, which was a serious threat to biodiversity. The agricultural use of DDT is now leaned under the stock Holm convention, but it is still used in some developing nations. pesticides use has increased 50 field and 2.3 million tonnes of pesticides are now used each year.

CLASSIFICATION :

pesticides are classified according to the pests they control. The four main types of pesticides are i) Herbicides.

ii) Fungicides

iii) Rodenticides

iv) Insectisides.

HERBICIDES :-

Herbicides eliminates plants threat grows where they are not wanted. Farmers use them to reduce them weeds in such public areas as parks and ponds. peoples use herbicides in their yards to get rid of crab grass, dandelions and other weeds.

FUNGICIDES :-

certain fungi cause disease and may infect both plants and animals, including human beings. Fungicides control plant diseases that infect food-crops-wood used for building houses in often begated with fungicides to prevent dry not. Rodenticides are used to control rats and other rodents that destroy stored food. Rats also carry bacteria that cause such disease as rabies and typhus.

RODENTICIDE :-

Rodenticides are chemicals made and sold for the purpose of killing rodents. while commonly reffered to as 'rat poison', rodenticides are also used to kill mice, squirrels, woodchucks, chipmunks, porcupines, nutria, beavers and voles.

INSECTICIDES :-

Farmers use insecticides to protect their crops from insect damage. In urban areas, public health officials use them to fight mosquitoes and those insects carry germs. people use insecticides indoor to control pests and ants and cockroaches.

ALTERNATIVES IN PEST CONTROL

Continuing problems arising from the wide spread use of board spectum insecticide creates a dilemma how best to control pest and at the sometime how to romove environmental hazards. Restrictions on use to pesticides and the substitution of pests on controlling use to pesticides is by far the best method. Restrictions can mean simply more limited use or total banning or chemicals. many countries have limited or banned the use of DDT and other chlorinated hydro carbons insectides but this group of chemicals is widly used mainly in the third world countries. The US department of agriculture has campaigned for the safe use of pesticides but from enviroment point of view no broad spectrum biocides can be used.

Traditional insecticides such as pyrethrum or non-persistent chemicals such as carbonate seven are now very widely used and totally new types of pest control are useful in particular cases. For example the autodial techniques make use to sterilized

nails population. large-scale rearing, radiation sterilizing and relase programme are now major effect of the US Department of agriculture and are highly effective in restricted situations.

REQUIREMENTS :-

Mortar and pestle, beaker, funnel, glassrod, filter paper, china dish, water bath, tripod stand, fusion-tubes, knife, test-tube.

Samples of fruits, vegetables, alochol, sodium metal, ferric chloride solution, ferrous sulphate caystals, distilled water and dilute sulphuric acid.

PROCEDURE :-

1. Take different kinds of fruit and vegetables and cut them into small piece separately.
2. Transfer the cut piece of various fruits and vegetables in mortar separately and crush them.
3. Take different beaker of each kind of fruits and vegetables and place the crushed fruit and vegetable in these beakers, and add 10ml of alcohol to each of them. stir well and filtrer collect the filtrate in separate china dishes.
4. Evaporate the alcohol by heating china dishes one by one over water bath and let the residue dry in an oven.
5. Heat a small piece of dry sodium in a fusion tubes, till it melts. Then add one of the above residues

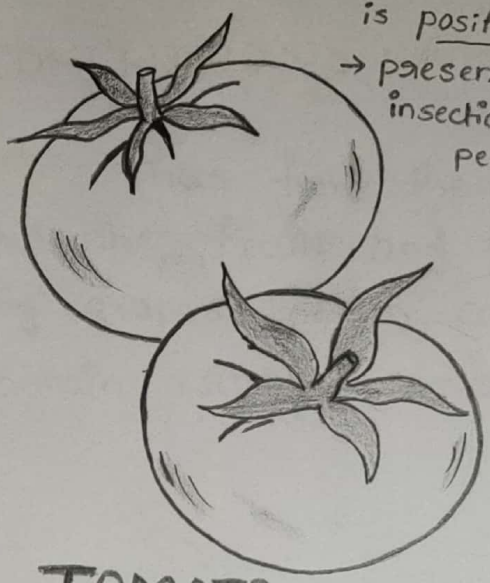
from china dish to the fusion tube and heat till red hot. Drop the hot fusion tube in china dish containing about 110ml of distilled water. Break the tube and boil the contents of the china dish for about 5 minute to cool and filter solution. collect the filtrate.

6. To the filtrate add 1ml freshly prepared ferrous sulphate solution and warm the contents. Then add 2-3 drops of ferric chloride solution and acidity with the dil. Hydrochloric acid if a blue or green precipitate or colouration is obtained, it indicated the presence of nitrogen containing insecticides.

7. Repeat the test of nitrogen for residue obtained from other fruits and vegetables and record observation.

OBSERVATION :-

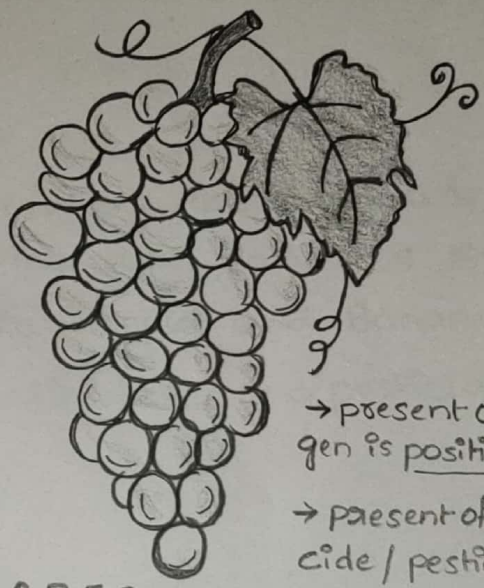
Sl. No	Name of the fruit are vegetable	Test for presence of Nitrogen	presence of insecticide / pesticide
1.	Tomato	positive (+ve)	Yes
2.	Grapes	positive (+ve)	yes
3.	Carrot	Negetive (-ve)	NO
4.	potato	positive (+ve)	Yes
5.	Apple	positive (+ve)	yes
6.	Banana	positive (+ve)	yes.



→ Presence of Nitrogen is positive [+ve]

→ Presence of insecticide / pesticide

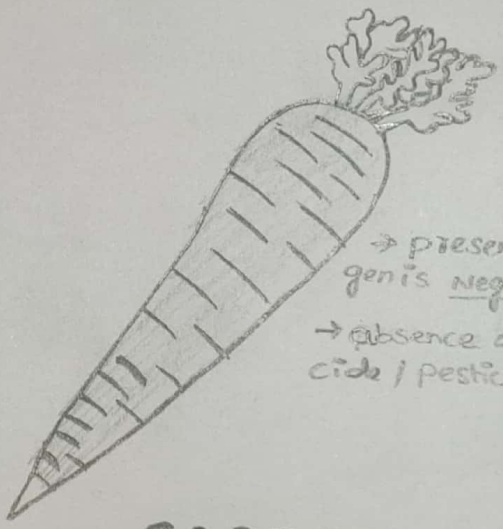
TOMATO



→ present of Nitrogen is positive (+ve)

→ Presence of insecticide / pesticide

GRAPES



→ present of Nitrogen is negative (-ve)

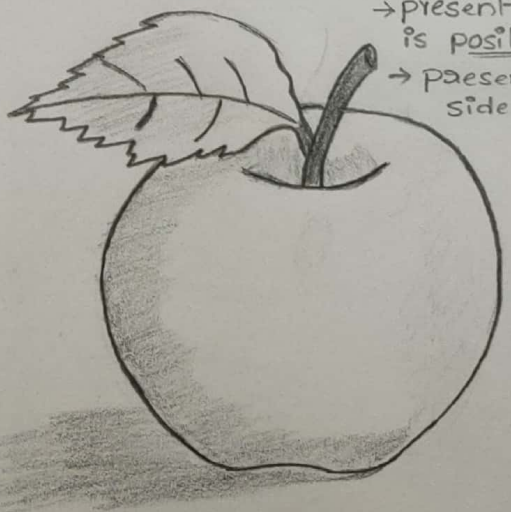
→ absence of insecticide / pesticides.

CARROT

→ present of Nitrogen is positive (+ve)

→ Presence of insecticide / pesticide.

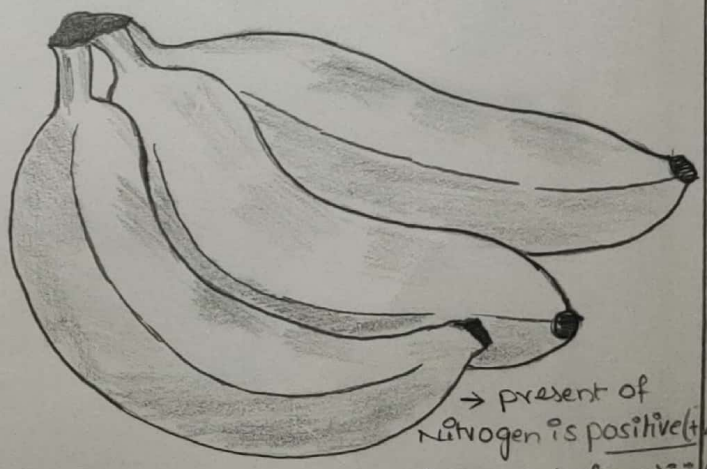
POTATO



→ present of Nitrogen is positive [+ve]

→ Present of insecticide / pesticide

APPLE



→ present of Nitrogen is positive (+ve)

→ Present of pesticides

BANANA

CONCLUSIONS :-

Thus from the above experiment we conclude that the fruits and vegetables that we consume especially grapes, tomato, carrot, potato, apple and Banana contain Nitrogen containing insecticides and pesticides.

Thanking you

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Department Of Chemistry

Academic Year: 2020-2021

STUDENT STUDY PROJECT

ON

INVESTIGATORY PROJECT ON FERTILIZERS

S.No	Name of Student	Group	Roll No.
1	L.Vanaja	BZC III Year	19033024445035
2	A.Preethi	BZC III Year	19033024445003
3	K.Priyanka	BTBC III Year	19033024572002
4	U.Akankasha	MZC III Year	19033024457015
5	C.Bhaskar	BZC III Year	19033024445514

PROJECT GUIDED BY

Mr.HariBabu

Asst.Professor of Chemistry

Department in charge
Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal
PRINCIPAL
M.A.L.D. Govt. Arts & Science College
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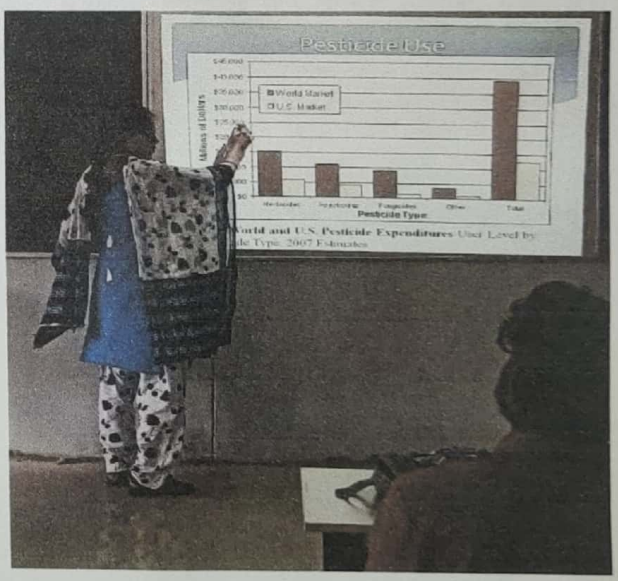
INVESTIGATORY PROJECT ON FERTILIZERS



Department In charge

Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist

Principal

PRINCIPAL
M.A.L.D. Govt. Arts & Science Colleg
GADWAL - 509 125

NAME OF THE PROJECT WORK

INVESTIGATORY PROJECT

ON

FERTILIZERS

Investigatory Project on Fertilizers

Abstract :-

Plants need to be fertilized because most soil does not provide essential nutrients required for optimum growth. Even if the person is lucky enough to start with great garden soil, as your plants grow, they absorb nutrients and leave the soil less fertile. Nutrients in the soil also help plants grow strong. Some nutrients that plants need are nitrogen, phosphorus, potassium, calcium, magnesium, and sulfer.

Introduction :-

Fertilizers, also known as food elements, are material to supple these elements in a readily available form of plant use. It helps to make plants grow faster which help some farmers and gardeners for their business. Choosing the right fertilizer helps us to get everything we need form the plants we eat or from the meat of animals that eat plants. Plants are factories that do all of the work to process the basic elements of life and make them available to us.

Fertilizers help feed the world. The FARO has stated that "after land and water, fertilizers are

probably the most important input leading to increased yields". It is inherently difficult to estimate the share of fertilizers in increasing agricultural output since so many factors are involved. It has been estimated that fertilizers contribute about 40% of the nitrogen in human protein consumption, it follows that nearly one third of this protein depends on fertilizers. Therefore, it is important for us to know which fertilizers to use for us to sustain properly the needs of every plant.

Increased crop production largely relies on the type of fertilizers used to supplement essential nutrients for plants. fertilizer application is required to replace crop and nutrients that have been consumed by previous plant growth with ultimate goal of maximizing productivity and economic returns. Now a day, there is increased emphasis on the impact on soil environment due to continuous use of chemical fertilizers. The impact of chemical fertilizer application on agricultural land is seen not only in terms of the soil quality, but also on the survival of soil organisms dwelling there in.

Chemical fertilizers provide 3 major plant nutrients; nitrogen, phosphorous and potassium or NPK. However, the ever increasing cost of commercial fertilizer products

driven, in part, by the inevitable depletion of global phosphorus, is forcing producers to look for alternative sources like bio-fertilizers and other organically-based solutions.

In literature, some researchers have concluded the chemical fertilizers to be harmful for soil organisms but on the contradictory they have been supported too to be beneficial as far as their food supply is concern. The primary advantages of using biosolids as a fertilizer alternative are cost efficiencies and the presence of nutrients and organic matter. Returning these valuable materials back to the soils is a critical element in long-term sustainability.

Statement of the problem :—

This research aim to compare 2 different brand of fertilizer. Chemical fertilizer and citrus sinensis peeling fertilizer), specifically the researches sought to answer the following questions.

- What are advantage and disadvantage of using these fertilizers ?.
- What fertilizer will Mark plant grow faster and healthier ?
- What fertilizer is better and safer to use : citrus sinensis peeling or branded fertilizer.

Hypothesis

The researches will determine the effectivity of the product by testing the effectivity of 2 brand of fertilizer in separate plant (plant A plant B). after the testing the researches will record the result Make a statement about the research.

Significance of the Study

The Study is beneficial to;

1 farmers and gardners :-

The benefit of Study will help them to Improve the product by testing the effectivity of 2 brand the quality of product save time work and get a Lighter profit.

2. Environment :-

Two The benefit of Study will help our Enviromant by helping the soil and plant of Sustain their needs and provide.

Benefit of Study will help the community to sense this as a source of income if made into Business.

Definition of Terms

The following terms are defined in Study.

- Nitrogen- tasteless odorless gaseous Chemical elements.

- Phosphorus- poisonous waxy chemical element
- Calcium- a soft gray alkaline earth metal, fifth most abundant element by mass in earth's crust.
- Sulfur- an abundant, multivalent non-metal.
- Citrus sinesis. the scientific name of sweet Organes. It is almost consumers commonly buy.

The research about comparison between 2 different brands of fertilizer was to help the community to be aware importance of fertilizers also to give the information which fertilizer used in plants. Books internet and other reference materials we used primary source of information to strengthen the researches. view of topics.

A. Materials

- Pot A and pot B
- good quanity of soil
- Seeds to be use (any kind of plant; pechay)
- Water
- Sunlight
- Branded fertilizer
- Organge peelings.

Procedurce

1 Sow seeds thinly on shallow furrow across the seed pot and cover light fine topsoil. No. not broadcast seed when sowing avoid.

germination in on place.
2. Water Seed pot daily. watering and other cultural mangement practices should regular done..
3. Apply liberal ammount of fertilizer (citrus Sensis Peeding for pot A and branded fertilizer for pot B). at Base of plant corer light with soil and water Immediately..
4. Water the plant whenever necessary or depending you own judgement or observation of plant.
5. Alway remember to give both pots a presence Of sunlight for process of growing.
6. Every week, Measure the height of Both Plant.

Observe

As long the researches followed the procedure success of experimentation with be achieved. factors such as sunligue could affect the study. that study could fail. However researches could try it once more again until the study is evaluted.

Major fertilizer containing N:

(a) Ammonium nitrate (NH_4NO_3)

(b) Potassium nitrate (KNO_3)

(c) Urea (NH_2CONH_2)

(d) Ammonium Sulphate ($(NH_4)_2SO_4$)

Preparation :-

Most of nitrogen fertilizer obtained from Systhetic NH_3.

Nitrogen Deficiencies.

(a) Pale, green, yellow leaves

(b) Stunted growth.

Nitrogen in excess -

(a) Lower disease resistance

(b) Weaken Stem

(c) Decay Maturity

(d) Lower fruit quality.

PHOSPHORUS :

Major fertilizer containing P:

(a) DAP - Diammonium Phosphate ($(NH_4)_2PO_4$)

(b) $Ca_3(PO_4)_2$ - calcium Phosphate.

(c) Triple phosphate and Super Phosphate.

Preparation

Most phosphoric fertilizer are obtained by treatment of calcium phosphate with H_2SO_4 and phosphoric fertilizer. calcium phosphate is mainly derived from phosphate rock and bones. phosphate rock found in deposits of sedimentary orgin laid down on beds of ocean floor.

Phosphorus deficiancis :—

(a) pale purple colour on the underside of leaves

(b) Reduced flower, fruits and seed production.

Advantage of P :

(1) Encourage cell division

(2) Hastens Maturity, offsetting.

(3) Encourage root growth

(4) Increase disease resistance.

phosphorous in excess.

(1) Causes dehydration of roots

(2) Increase soluble salt contant of medium.

Preparation :-

It the seventh amost abundant element found earth crust. potassium chloride which principal commerical from of some KNO_3 also used production of potash fertilizer.

Potassium deficiencies :-

(1) Leaves appear dry and scorched.
(2) Irregular yellow area on surface.

Advantages of K :

(1) Increase diseases resistance
(2) Encourage healthy root and steam.
(3) Effecient in CO_2.
(4) Essential for starch formation.

Potassium in excess :-

(1) Affect soil acidity.
(2) Reduced flower, fruit and seed production.

Result :-

Fertilizer has Ca^{2+} as cation.

Experiment	Observation	Inference.
(1) Take 1 ml of Lassaigne solution (Na) in a test tube and to add few drops of freshly prepared ferrous sulphate solution Heat it. cool it to add few drops of conc H_2SO_4.	Prussian blue colour	Nitrogen present in elemental form.

The given fertilizer has N in element form.

Department of Chemistry
M.A.L.D. Govt. Arts & Science College
GADWAL-509 125, M. Nagar Dist