

CHOITHRAM SCHOOL

CHEMISTRY PROJECT:
ANALYSIS OF HONEY



SUBMITTED BY:

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XII -C

GUIDED BY:

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CERTIFICATE

This is to certify that **AKSHARA GUPTA** of class 12th has successfully completed the project work on chemistry, titled as “**ANALYSIS OF HONEY**”, for class XII practical examination of the Central Board of Secondary Education in the year 2014-2015. It is further certified that this project is the individual work of the candidate.

Principal

MR.RAJESH AWASTHI

SUBJECT TEACHER

Mrs.MANISHA SHARMA

DECLARATION

I hereby declare that the project work entitled “**ANALYSIS OF HONEY**” submitted to the “**CHOITHRAM SCHOOL**”, is a record of original work done by me except of the experiments, which are duly acknowledged, under the guidance of my subject teacher “Mrs.MANISHA SHARMA” ma’am.

ACKNOWLEDGEMENT

I would like to express my special thanks to our school '**CHOITHRAM SCHOOL**', principal sir **Mr. 'RAJESH AWASTHI'**, to the management team of our school who gave me the golden opportunity to do this wonderful project on the topic **ANALYSIS OF HONEY**, which also helped me in doing a lot of Research and I came to know about so many new things.

Secondly I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time.

THANKS AGAIN TO ALL WHO HELPED ME.

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AIM -:

To analyze the available honey for presence of different minerals and carbohydrates.

REQUIREMENTS

APPARATUS

TEST TUBE
TEST TUBE STAND
BURNER
WATER BATH

CHEMICALS

FEHLING SOLUTION A
FEHLING SOLUTION B
AMMONIUM CHLORIDE SOLUTION
AMMONIUM OXALATE SOLUTION
AMMONIUM PHOSPHATE
CONC.NITRIC ACID
POTASSIUM SULPHOCYANIDE SOLUTION

THEORY

Honey, thick, sweet, super saturated sugar solution manufactured by bees to feed their larvae and for the subsistence during winter.

Bee honey is composed of fructose, glucose and water, in varying proportions. It also contains several enzymes and oils. The color & flavor depends on the age of the honey and the sources of the nectar. Light colored honeys are usually of higher quality than dark coloured honeys. Other high grade honeys are made by bees from orange blossoms, clover and Alfalfa. A well known, poorer grade honey is produced from buckwheat.

Honey has a fuel value of about 3307 cal/kg [1520 cal/ lbs]. It readily picks up moisture from the air and is consequently used as a moistening agent for Tobacco and in baking. Glucose crystallizes out of honey on standing at room temperature, leaving on uncrystallized layer of dissolved fructose. Honey to be MARKETED is usually heated by a special process to about 66°C [150.01 F] to dissolve the crystals and is sealed to prevent crystallization. The fructose in crystallized honey ferments readily at about 16°C.

PROCEDURE

TEST FOR MINERALS:-

1. Test for Potassium:-

2ml of honey is taken in a test tube and picric acid solution is added. Yellow precipitate indicates the presence of K^+ .

2. Test for Calcium:-

2ml of honey is taken in a test tube and NH_4Cl solution and NH_4OH solution are added to it. The solution is filtered and to the filtrate 2ml of ammonium oxalate solution is added. White ppt. or milkiness indicates the presence of Ca^{2+} ions.

3. Test for Magnesium:-

2 ml of honey is taken in a test tube and NH_4Cl solution is added to it and then excess of Ammonium phosphate solution is added. The side of the test-tube is scratched with a glass rod. White precipitate indicates the presence of Mg^{2+} ions.

4. Test for Iron:-

2ml of honey is taken in a test tube and a drop of conc. HNO_3 is added and it is heated. It is cooled and 2-3 drops of Potassium sulphocyanide solution is added to it. Blood red colour shows the presence of iron.

TEST FOR CARBOHYDRATES

1. Fehling`s test:

2ml of honey is taken in a test tube and 1ml each of Fehling`s solution A and Fehling`s solution B are added to it and boiled. Red precipitate indicates the presence of reducing sugars.

2. Tollen`s test:

2-3 ml of aqueous solution of honey is taken in a test tube. 2-3ml of Tollen`s reagent is added. The test tube is kept in a boiling water bath for about ten minutes. A shining silver mirror indicates the presence of reducing carbohydrates.

OBSERVATION TABLE

Substance taken: Honey

<u>SL. NO</u>	<u>TESTS</u>	<u>OBSERVATION</u>	<u>INFERENCE</u>
1.	<u>Test for Potassium:-</u> Honey + Picric acid solution	Yellow ppt.is observed	Potassium is present.
2.	<u>Test for Calcium:-</u> Honey + NH_4Cl soln. + NH_4OH soln. filtered + $(\text{NH}_4)_2\text{C}_2\text{O}_4$	White ppt.or milkiness is not observed	Calcium is absent.
3.	<u>Test for Magnesium:-</u> Honey+ NH_4OH (till solution becomes alkaline) + $(\text{NH}_4)_3\text{Po}_4$	White ppt.is not observed	Magnesium is absent.

4.	<p><u>Test for Iron:-</u></p> <p>Honey+ conc.HNO₃, heated and cooled, + potassium sulphocyanide</p>	Blood red colour is observed	Iron is present.
5.	<p><u>Fehling`s test:-</u></p> <p>Honey + 1mL each of Fehling`s solution A and Fehling`s solution B</p>	Red ppt. is observed	Reducing sugar is present.
6.	<p><u>Tollen`s test:-</u></p> <p>Honey + 2-3mL Tollen`s reagent, test tube in water bath for 10 minutes</p>	Shining silver mirror is observed	Reducing carbohydrate is present

RESULT

Potassium is present.

Iron is present.

Calcium is absent.

Magnesium is absent.

Honey contains reducing sugar.

BIBLIOGRAPHY

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