

DEPARTMENT OF CHEMISTRY  
GOVERNMENT DEGREE COLLEGE KALWAKURTHY,  
DIST: NAGARKARNOOL,  
TELANGANA STATE,  
PIN: 509324.

**Title of the Project**

ANALYSIS OF HONEY

SUBMITTED BY:

1. ANKITHA
2. POOJA DEEPTHI
3. TULASI
4. NEHA
5. SHIVA PRAKASH

SUPERVISOR

H.MALLESH

ASSISTANT PROFESSOR IN CHEMISTRY

GOVERNMENT DEGREE COLLEGE ,KALWAKURTHY


NAGARKARNOOL (DIST)

# DECLARATION

We do hereby declare that the work presented in this study project entitled "ANALYSIS OF HONEY" has been originally carried out by us under the supervision of H. MALLESH, ASSISTANT PROFESSOR IN CHEMISTRY Government Degree college, Kalwakurthy and has not been submitted either in part or in full for any study project work to any other Govt. Degree colleges in Telangana state.

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Place: Kalwakurthy

  
(H.MALLESH)  
PRINCIPAL  
Study Project Supervisor  
KALWAKURTHY  
Nagarjuna

## ANALYSIS OF HONEY

The color & flavor depends on the age of the honey and the sources of the nectar. It colored honeys are usually of higher quality than dark colored 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.

### Apparatus:

Test tubes, 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 sulpho cyanide solution.

### Procedure

#### 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.  $\text{HNO}_3$  is added and it is heated. It is cooled and 2-3 drops of Potassium sulphocyanide solution is added to it. Blood red color 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. Tollens test:

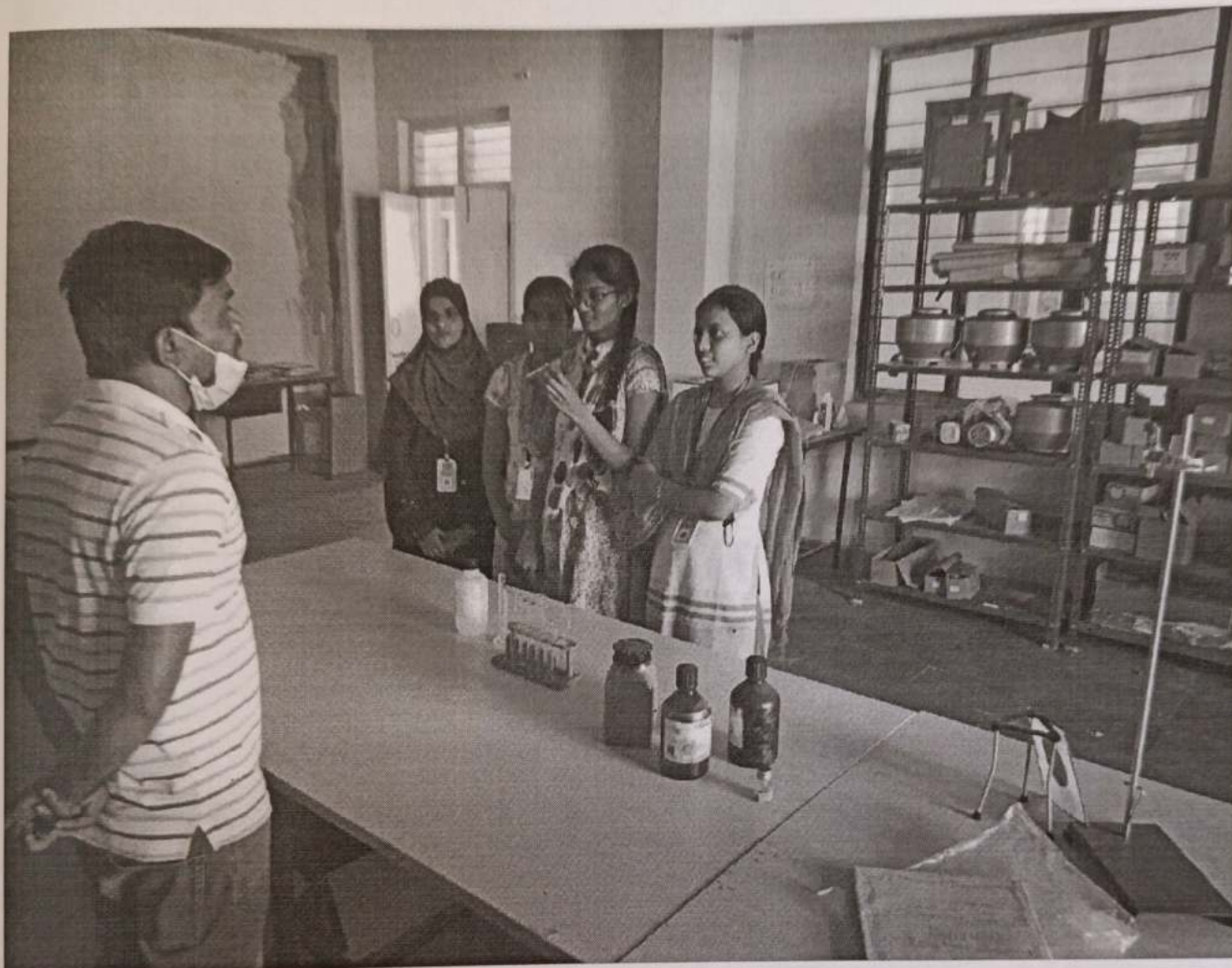
2-3 mL of aqueous solution of honey is taken in a test tube. 2-3mL of Tollen's reagent is added. The test tube is kept in a boiling water bath for about ten minutes. A shining silver mirror indicates the presence of reducing carbohydrates.

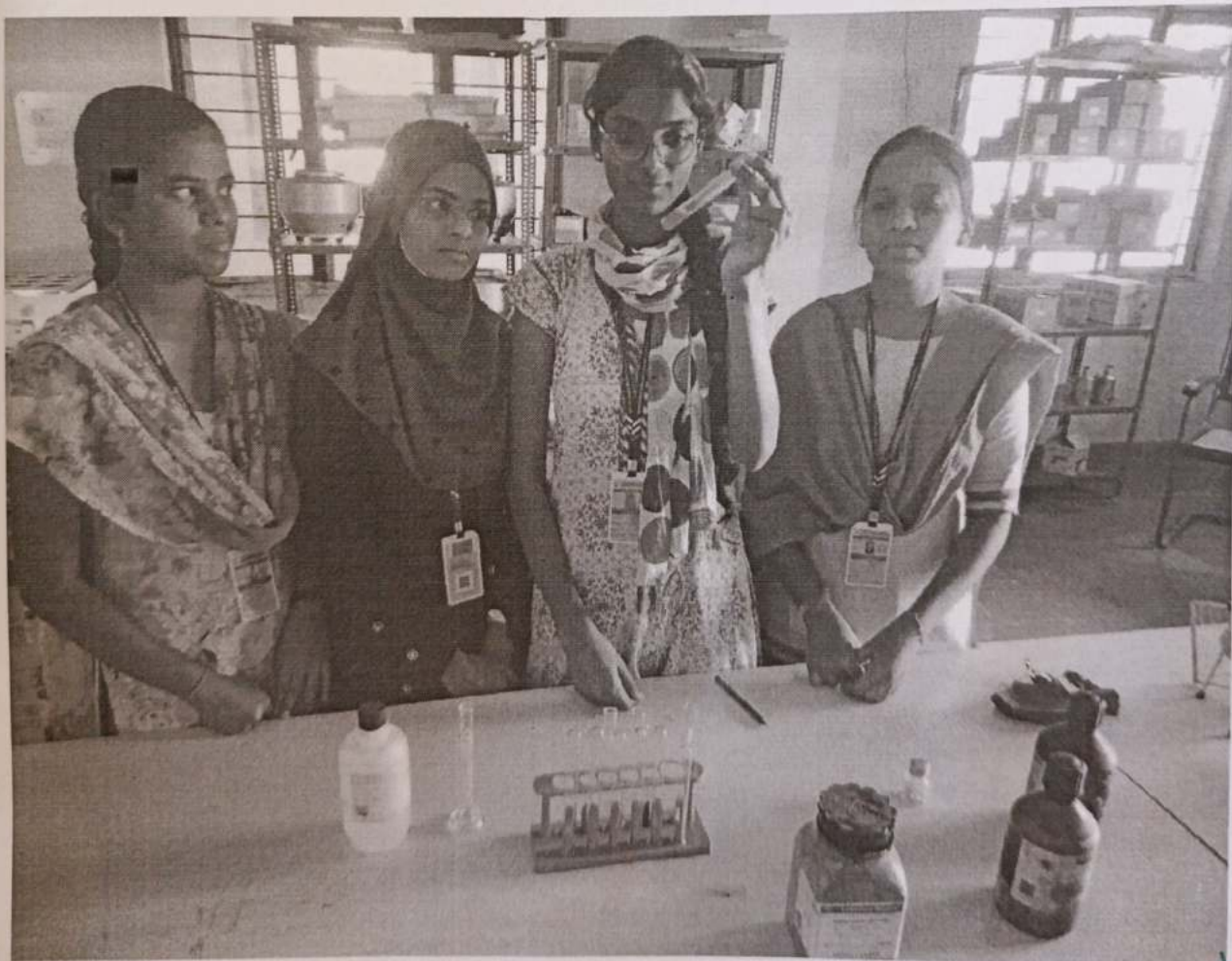
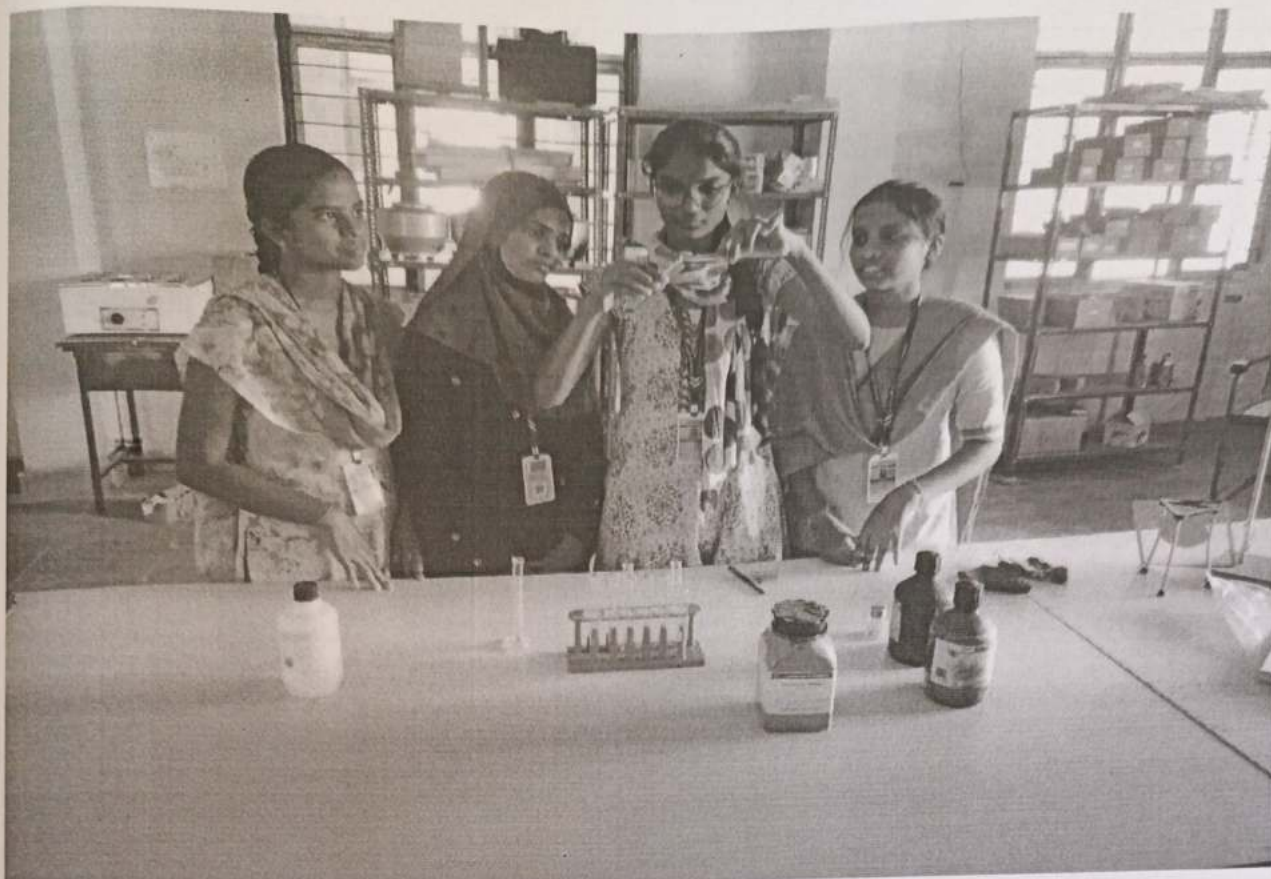
### Observation Table

S.No	TEST	OBSERVATION	INFERENCE
1	Test for Potassium Honey+ Picric acid Solution	Yellow ppt is observed	Potassium is present
2	Test for Calcium Honey+ $\text{NH}_4\text{Cl}$ + $\text{NH}_4\text{OH}$ +sol filtered+ $(\text{NH}_4)_2\text{C}_2\text{O}_4$	Milkiness is not observed	Calcium is Absent
3	Test for Magnesium Honey+ $\text{NH}_4\text{OH}$ (till solution becomes alkaline)+ $(\text{NH}_4)_3\text{PO}_4$	White ppt is not observed	Magnesium is Absent
4	Test for Iron Honey+conc $\text{HNO}_3$ ,HEATED AND COOLED+POTASSIUM SULPHOCYANIDE	Blood red color is observed	Iron is present
5	Fehling test Honey+1ml each of Fehling's solution A and Fehling's solution B	Red ppt. is observed	Reducing sugar is present
6	Tollens Test Honey+ 2-3ml Tollens reagent test tube in water bath for 10 minutes	Shining silver mirror is observed	Reducing carbohydrate is present

## Conclusion

- Ø Potassium is present.
- Ø Iron is present.
- Ø Calcium is absent.
- Ø Magnesium is absent.
- Ø Honey contains reducing sugar.





*AN*  
PRINCIPAL  
Govt. Degree College,  
KALWAKURTHY  
Tal. Nargurkumool