



K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College,
Chikodi – 591 201.

(Accredited at 'A' with 3.26 CGPA in 3rd Cycle of A & A)

Department of Chemistry

A PROJECT REPORT
ON
“Chocolate Analysis”

Submitted by

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CERTIFICATE


Date: 19-04-2021

This is to certify that the B.Sc. VI semester students, Department of Chemistry of K.L.E S' Basavaprabhu Kore Arts, Science and Commerce College Chikodi, have successfully completed the project work titled "**Chocolate Analysis**" during the year 2020-2021.

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ACKNOWLEDGEMENT

We express our profound gratitude and sincere thanks to our beloved teacher and project supervisor **Smt G. B. Jambagi**, Chemistry Department, KLE Society's Basavaprabhu Kore Arts, Science and Commerce College Chikodi. It gives us a great pleasure to acknowledge the dedicated efforts, sustained interests, affection and all kinds of encouragement that we have received from him, throughout our project work.

We are extremely thankful to **Shri. U. R. Rajput**, Principal, KLE Society's Basavaprabhu Kore Arts, Science and Commerce College Chikodi and **Shri. S. B. Vanjire**, Head, Department of Chemistry for providing all the necessary facilities during our project work. We would also like to thank **Prof. S. S. Patil**, **Shri. Shantinath S. Latthe**, **Miss. S D Kotabagi** and **Smt. Daneshwari S Kanagali** and all the teachers of Department of Chemistry KLE's B K College Chikodi, for their keen interest, valuable discussion, everlasting encouragement, inspiring guidance and incessant help.

We specially want to thank our dear colleagues for team work, valuable discussion and cooperation.

We thank all the non-teaching staff for their help during our project work.

We owe our special gratitude to **parents**, whose blessings sacrifices and moral support made this endeavour of our reality.

Finally, we thank all those who helped us directly or indirectly to complete this work.

Date: 19-04-2021

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Introduction:

Chocolate is one of the most popular food types and flavors in the world, and many food steps involving chocolate exist, particularly desserts, including cakes, pudding, , chocolate brownies and chocolate chip cookies. Many candies are filled with or coated with sweetened chocolate.

Chocolate is a highly commercialized and money making program. Chocolates are made from the seeds of COCOA trees. Spanish mythology consider these trees were grown in the garden of the PARADISE and believed that chocolate drink was divine. The cocoa tree is tropical plant, sometimes living and producing for more than 200 years. There are many varieties cultivated today and this farming is highly profitable.

Chocolates can be categorized into one of the following group.

1. Bitter
2. Bitter sweets
3. Unsweetened
4. Dark sweetened
5. Milk chocolates
6. Cocoa powder
7. Cocoa sauce/syrup.

Apparatus Required: Test tubes, water bath, iron stand, glass rod, watch glass, test tube holder etc .

Milky bar, dark chocolate, Cadbury bar Chocolate etc.

Chemicals required:

1. Sodium Hydroxide(NaOH)
2. Copper sulphate(CuSO₄)
3. Moliscli's reagent(C₁₀H₇OH)
4. Fehling's solution
5. Sulphuric acid(H₂SO₄)
6. Tollen's reagent
7. Ammonium chloride(NH₄Cl)
8. Ammonium hydroxide (NH₄OH)
9. Sodium Phospate(Na₃PO₄) etc.

Aim:

To find out the presence of

- Proteins
- Sugars
- Calcium
- Iron
- Magnesium
- Nickel

Procedure:

Organic tests and inorganic tests done to for identification of Protein, sugar and also tests for identification of calcium, magnesium, iron and nickel.

TEST FOR PROTEIN			
	EXPERIMENT	OBSERVATION	INFERENCE
1	5 ml of each sample if chocolate taken in different test tube. Add 1 pellet of NaOH to each Add 1 to 2 drops of copper sulphate solution to each.	Appearance of violet coloration	Presence of PROTEIN in the sample.

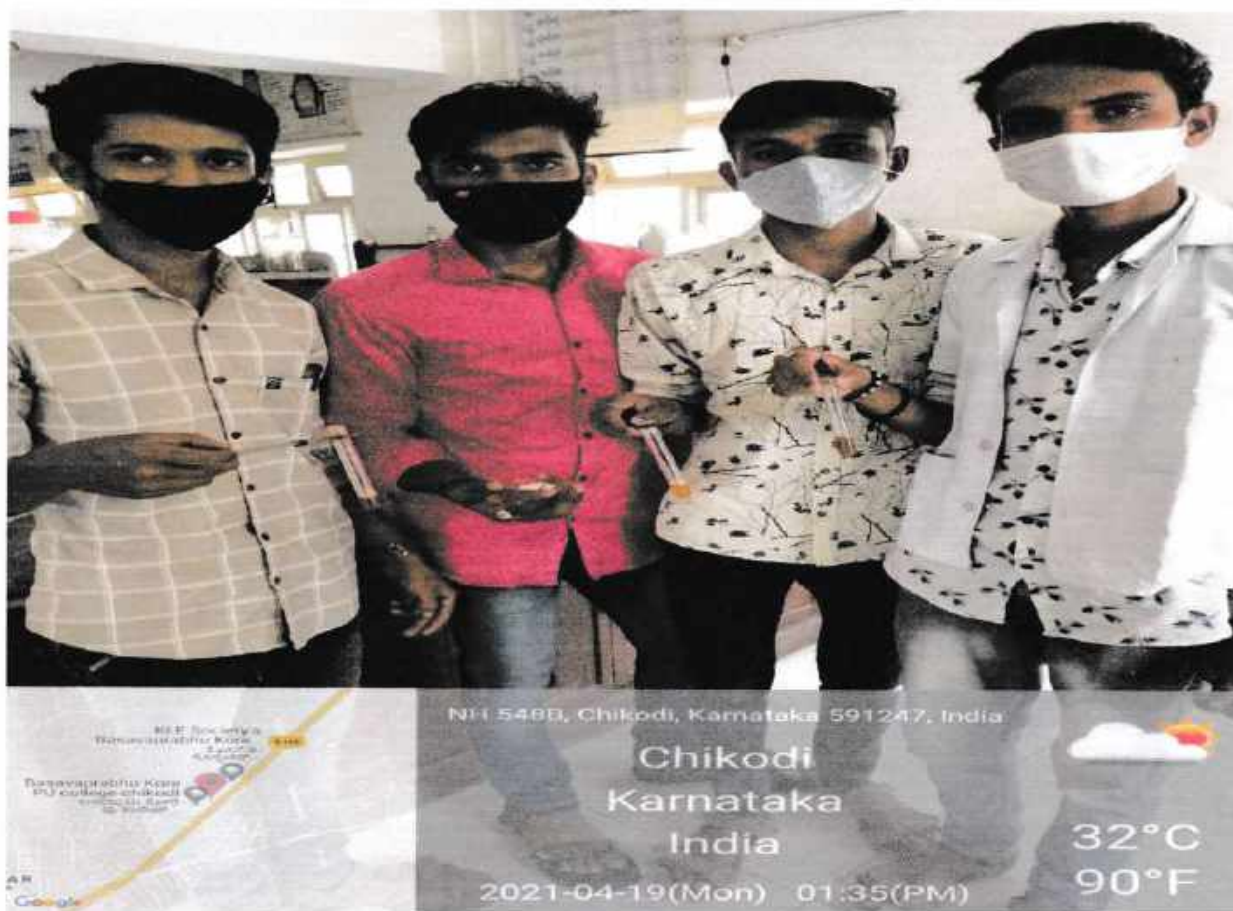
Result: All samples studied showed that they contain PROTEIN.
(Milky bar, Cadburys bar, Dark chocolate)



TEST FOR SUGAR			
	EXPERIMENT	OBSERVATION	INFERENCE
1	2 ml Tollen's reagent taken in different test tube and pinch of the chocolate into the each test tube. keep the solution in the water bath.	Silver mirror surface is formed.	Presence of SUGAR in the sample.
2	Mix 2 ml of Fehling's solution in different tet tubes. Add pinch of the chocolates into the each test tube. . keep the solution in the water bath.	Red brown precipitate obtained.	Presence of SUGAR in the sample.

Result:

All samples studied showed that they contain SUGAR.
(Milky bar, Cadburys bar, Dark chocolate)



TEST FOR CALCIUM			
	EXPERIMENT	OBSERVATION	INFERENCE
1	A mixture of $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH} + (\text{NH}_4)_2\text{CO}_3$ add sample of chocolate.	A white precipitate obtained	Presence of CALCIUM in the sample
2	With help of glass rod each sample of chocolate solution placed on different watch glass. Add drop of con. HCl and a paste is made on each sample. this paste is taken on the glass rod and burned on non luminous flame.	Brick red color flame obtained.	Presence of CALCIUM in the sample.

Result:

All samples studied showed that they contain CALCIUM.

(Milky bar, Cadburys bar, Dark chocolate)



TEST FOR IRON			
	EXPERIMENT	OBSERVATION	INFERENCE
1	A mixture of $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$ is made. This is added to each sample of chocolate solution taken in different test tubes.	No brown precipitate	Absence of IRON in the sample.

Result: All samples studied showed that they do not contain IRON. (Milky bar, Cadburys bar, Dark chocolate)

TEST FOR MAGNESIUM			
	EXPERIMENT	OBSERVATION	INFERENCE
1	A mixture of $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH} + \text{Na}_3\text{PO}_4$ is made. This is added to each sample of chocolate solution taken in different test tubes.	No white precipitate	Absence of MAGNESIUM in the sample.

Result:

All samples studied showed that they do not contain MAGNESIUM.

(Milky bar, Cadburys bar, Dark chocolate)

TEST FOR NICKEL			
	EXPERIMENT	OBSERVATION	INFERENCE
1	A mixture of $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$ is made. This is added to each sample of chocolate solution taken in different test tubes. Pass H_2S gas to the solution.	No black precipitate	Absence of NICKEL in the sample.

Result:

All samples studied showed that they do not contain NICKEL.

(Milky bar, Cadburys bar, Dark chocolate)

Conclusion:

Sl.No	Substance	Present/Absent
1	Proteins	Present
2	Sugars	Present
3	Calcium	Present
4	Iron	Absent
5	Magnesium	Absent
6	Nickel	Absent

References:

www.foodhealthinnovation.com

Internet

Vogel's qualitative analysis