Adulteration of milk in Kaviyoor region

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ABSTRACT: *Milk is effectively available nourishment that can be quickly processed and ingested. From early stages to puberty, milk and milk items in eating routine has a critical influence in development and advancement. Carelessness to keep up appropriate clean conditions and adding adulterants in milk to build the overall revenue has turned out to be exceptionally normal in India. Milk tests gathered from nearby sellers were tried for different adulterants like detergent, glucose, starch, water, urea, Vanaspati and synthetic milk. Results demonstrated nonattendance of adulterant from the greater part of the milk tests. Present investigation endeavored to acquire mindfulness on milk corruption and different straightforward strategies for its solid recognition.*

Key Words: *Adulterant, Detergent, Urea, Starch, Vanaspati, Glucose.*

I. Introduction

Milk is the lacteal outflow of the mammary organ of homeotherms. In various pieces of the world, cow is the essential source of milk for human use. About 4.5% fats, 3.8% proteins, 4.9% lactose, and 13.9% all out solids are accessible in bovines' milk (Khan et al., 2005). India is the second greatest milk conveying country on earth after the United States contributing 9.5 percent of the overall dairy creatures' milk creation and first for buffalo milk generation. Water is normally used for debilitating the milk while treatment with sugar, urea, and starch are to impersonate the shading, consistency, and nitrogen content. To fulfill the expanding need because of the fast development in popularity, contaminated is by and large generally drilled in India at a substantial scale. Long and transient medical issues are caused because of the utilization of debased milk (Handford et al., 2016). With the extension of beguiling practice in the dairy business, real control strategies are required to distinguish the validity of milk and milk things. Different tests are intended to decide the contaminated in milk. Chemical method is one among such tests. Here the adulterant is treated with a specific compound and its essence brings about giving a hued compound. Compound Tests are undeniable to the thing and the negative result won't be gotten.

In Pathanamthitta district, Kaviyoor is a town in the state of Kerala, India. The city has a tropical climate and is located at 9°23′0″N 76°36′0″E.

The target of this examination was to discover milk quality in Kaviyoor area. This study will generate some valuable information about quality of milk provided in the locality.

II. MATERIALS AND METHODS

2.1 Sample collection

Milk samples were purchased from 4 local vendors of different locality near Kaviyoor. Samples from the vendors were gathered in a sanitized holder and exposed to laboratory techniques for the identification of adulterants.

2.2 Chemical test for detections of adulterants

Collected sample were tested as per following test (Pradeep et al., 2016).

1. Urea

About 2ml of sample is taken in a test tube. 1ml of phenol red (indicator) is added to the sample and was kept in water bath at 35°C for 5 min. To this 0.5 ml of urease is included. To this 0.5 ml of urease is incorporated. Appearance of peach shading showed minute measure of urea. Reddish brown color was seen for low concentrations, Pink color for moderate concentration and Magenta for high concentration.

2. Detergent

Around 5-10 ml of test with equivalent volumes of water was taken in a test tube and was shaken strenuously. Appearance of foam affirms existence of detergent.

3. Starch

Two or three drops of iodine were added to the milk tests. Appearance of blue black color shows presence of starch.

4. Glucose

Around 2 ml of milk test was taken in a test tube and equivalent volume of Benedict's reagent was added to it. This was then kept in boiling water bath for 5 minute and was observed for color changes. Appearance of blue color indicates no glucose present. While green color indicates trace amount. Yellow, orange, red colors were observed low, moderate and high concentration respectively.

5. Vanaspati

Take 3 ml of milk test was taken in a test tube. Around 10 drops of hydrochloric acid was added to it sought after by one tea spoonful of sugar. The mix was assessed after 5 min. The red coloration exhibits the presence of Vanaspati in milk.

6. Water

A little measure of milk was put on a smooth inclination surface. Debased milk won't leave a trail and slides quicker. The milk is weakened to expand amount and subsequently decline quality.

7. Synthetic milk

Take a drop of milk and rub it between fingers. Foamy feeling on scouring between fingers shows the existence of synthetic milk. Manufactured milk is made by blending urea, cleanser paints and oils etc.

III. OBSERVATIONS

The observations for the milk samples after chemical testing are summarized in Table-1.
Table 1: Results of chemical test

	UREA	DETERGENT	STARCH	GLUCOSE	VANASPATHI	WATER	SYNTHETIC MILK
SAMPLE 1	✗	✗	✗	✗	✗	✓	✗
SAMPLE 2	✗	✗	✗	✗	✗	✓	✗
SAMPLE 3	✗	✗	✗	✗	✗	✓	✗
SAMPLE 4	✗	✗	✗	✗	✗	✓	✗

✗ Absence of adulterant   ✓ Presence of adulterant

Sample 1: Local vendor from Kottoor
Sample 2: Local vendor from Pazhampalli
Sample 3: Local vendor from Kaniyanpara
Sample 4: Local vendor from Anjilithanam

IV. RESULTS AND DISCUSSION

These four milk samples were collected from different places near Kaviyoor. The chemical tests performed on milk samples showed negative results for all tests expect water. Water was present in all samples. These compound tests are exceptionally explicit and can identify even follow minute amount of the particular adulterant present in milk.

V. CONCLUSION

The quality of milk in developing countries like India is poor. Carelessness to keep up appropriate clean conditions and expansion of adulterants in milk to build the overall revenue has turned out to be regular among brokers. As polluted is transforming into a regular practice in India, it is extensive that customers think about the methodologies for perceiving these adulterants.

VI. Acknowledgment

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