

Occupation of synthetic milk in Western U.P.

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● ABSTRACT ●

The milk samples were collected from four districts in western region viz., Ghaziabad, Bulandshahr, Meerut and Baghpat, as these districts are the major milk suppliers for NCR. A total of 240 milk samples, 10 from each district each source like producers, traditional traders and organized traders and at each season, mid flush and mid lean. All milk samples were analyzed in laboratory. The milk samples of all the districts were found adulterated with synthetic milk. It is therefore suggested that consumers should collect or purchase milk directly from milk producers.

KEY WORDS : Synthetic milk, Quality milk, Producers, Traders, Adulterants

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● INTRODUCTION ●

The simplicity and rapidity with which milk can be adulterated always has tempted the unscrupulous milk vendors to indulge in fraudulent practices and adulterate the milk. The ever-rising greed has given way to the development of a new type of adulterated milk known as synthetic milk. Similar to genuine milk production, the practice of preparing the "synthetic milk" too starts at the village level. The places notorious for the production of synthetic milk include parts of Rajasthan, Haryana and Uttar Pradesh in India. Slowly but steadily the practice is spreading to other parts of India also. By synthetic milk, one would normally understand a product analogous to natural milk in its physical, chemical and nutritional properties. But there is no similarity between the two. Synthetic milk is a gross misuse of knowledge of chemistry *i.e.* process of saponification. The basic ingredients used in the manufacture of synthetic milk are caustic soda, water, refined vegetable oils/animals body fats, urea, detergents, sugar, salt and skim milk powder. It is a yellowish white emulsion, which is made by mixing cheap quality cooking oil and detergents in water. The detergent

increases the viscosity of the solution and vegetable oil prevents frothing in the solution. The soap also saponifies the oil into an emulsion, which liberates free fatty acid into the fluid. Adjustments of non-fatty solids in milk are acidic and so using caustic soda neutralizes it. Lactometer is used to adjust the specific gravity of synthetic milk equal to that of natural milk.

The synthetic milk has the following harmful effects on consumers :

- Swelling of hands and feet (consumption for long time)
- Adverse effect on eye sight may lead to blindness
- Cardiovascular diseases
- Neurological disorders
- Kidney and liver ailments can even lead to cancer.
- Acute toxicity of urea (ammonium compounds), which can show variety of symptoms such as muscle tremours, abdominal pain, poly urea, cyanosis dyspoea and hyperthemia in advanced toxicities.

Chakraborti *et al.* (1986) estimated that the volume at borderline souring of milk in India was about 10% of milk received from dairies during summer months. The problem of milk adulteration has become extensive in the states of Haryana, Punjab, Uttar Pradesh and Rajasthan (Bector, 1998).

Synthetic milk has become a threat to the country's dairy industry in Rajasthan, Delhi, U.P., Haryana, Punjab and Gujarat (Dairy News, 1996). This toxic concoction was reported to include urea, sugar, common salt, chalk powder, white paint, oil refinery, wastes, detergents, caustic soda,

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shredded blotting paper and arrow root (Mishra, 2000).

The adulteration not only deteriorates the nutritive value but also has bad effect on health of the consumer. Adulteration in milk is one of the most serious problems faced by the dairy industry. (Singh and Singh, 2008)

National Dairy Research Institute, Karnal has given quick and rapid methods to detect various ingredients of synthetic milk. It is very useful for the dairy industry to test milk samples in the presence of milk producers and for the public health officials to test milk on the spot in the shop keepers or milk venders. The kit provided by N.D.R.I., Karnal incorporates testing reagents for various kinds of adulterants like sugar, starch, glucose, urea, neutralizers, ammonium compounds, formalin, salt, nitrates, hydrogen peroxide and pond water (Raj, 2004).

● MATERIALS AND METHODS ●

Ten samples from each type of milk supplier (producers, venders and organized traders) from four districts (Ghaziabad, Bulandshahr, Meerut and Baghpat) were collected in mid flush (Nov.-Dec.) and mid lean (May-June) season. A total of 240 milk samples were collected. Milk samples were analyzed in laboratory. To study the quality of milk in the study region, the milk samples were taken in morning as such and brought to laboratory for analysis. The sample collected in evening were kept in refrigerator over night and test were conducted in next morning.

Detection of synthetic milk:

The method described by Ghatak and Bandopadhyay (2007) was used to detect the synthetic milk in sample taken.

● RESULTS AND DISCUSSION ●

The data regarding synthetic milk in various samples drawn from various districts (Ghaziabad, Bulandshahr, Meerut and Baghpat) levels (producers, traditional traders and organized traders) and different seasons (mid flush and mid lean) have been given in Table 1 and analyzed statistically and mean values were used in presentation and discussion.

Presence of synthetic milk in different districts of U.P.:

It is evident from the results indicated in Table 1 that 13.50 to 17.97% milk samples were found contaminated with synthetic milk in different districts. Maximum (17.97%) milk samples were found contaminated in Meerut district while lowest number of milk samples (13.50%), was contaminated in Baghpat district. In certain parts of Punjab selling of adulterated milk has been reported (Anonymous, 2005).

Presence of synthetic milk in sources of milk collection:

The observation presented in Table 1 also indicate that the traditional traders significantly influenced the presence of synthetic milk in the milk. The milk samples adulterated with synthetic milk was 00.00% in producer and 4.46% in organized traders was significantly higher (26.86 per cent) of synthetic milk.

Presence of synthetic milk in different season :

It is clear from the results of Table 1 that the seasons greatly influenced the presence of synthetic milk in pure milk. The percentage of adulterated milk samples in mid

Table 1 : Percentage of milk samples having synthetic milk

Sources of milk collection	Seasons	Ghaziabad	Bulandshahr	Meerut	Baghpat	Overall average
Producers	Mid flush	00.00	00.00	00.00	00.00	00.00
	Mid lean	00.00	00.00	00.00	00.00	00.00
	Average	00.00	00.00	00.00	00.00	00.00
Milk vendors	Mid flush	25.10	23.90	30.50	22.50	25.50
	Mid lean	30.50	27.30	32.20	22.90	28.22
	Average	27.80	25.60	31.35	22.70	26.86
Organized traders	Mid flush	4.10	4.00	4.50	4.10	4.17
	Mid lean	4.90	4.90	4.70	4.50	4.75
	Average	4.50	4.45	4.60	4.30	4.46
Seasons average	Mid flush	14.60	13.95	17.50	13.30	14.84
	Mid lean	17.70	16.10	18.45	13.70	16.49
Districts average		16.15	15.02	17.97	13.50	

flush season was 14.84%, which raised to 16.49% in mid lean season.

Interaction effects:

Maximum number of milk samples (31.35%) was found contaminated of traditional traders (vendors) in Meerut district. While no adulteration of synthetic milk was found in producers of all the four districts.

The milk samples found adulterated in the different districts and different seasons were showing significant differences. In the Baghpat district in mid flush season adulterated samples were significantly lowest (13.30%), but in case of Meerut district in mid lean season, adulterated samples were observed significantly highest (18.45%).

The interaction effect of various factors under study in the milk samples collected from different milk traders and different seasons in four districts of western Uttar Pradesh showed that 28.22% milk samples from traditional traders in mid lean season. While no adulteration of synthetic milk was found in producers of any season.

It is also evident from the results of Table 1 that in the milk samples those collected from various districts, different milk traders in various seasons showed significant difference in number of milk samples adulterated with synthetic milk. Maximum number of milk samples (32.20%) was found adulterated in Meerut district by traditional traders in mid lean season. While in combination of all districts in mid flush and mid lean season, adulteration was absence in milk samples of producers.

Conclusion:

Recently many cases of synthetic milk have been reported in U.P., Haryana, Delhi and Rajasthan. As the synthetic milk adversely affects the health of consumers because of its toxic constituents, its production and marketing become a serious offence and the Government should check this mal practice immediately. People

involved in this illicit profession should be punished strongly so that no one can dares to indulge in such nefarious activities in future and people will get pure milk without any adulteration. The milk samples taken from study districts were also found adulterated with synthetic milk with greater proportion in Meerut district, at traditional trader level and in the mid lean season. It is therefore suggested that consumers should collect or purchase milk directly from milk producers.

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