

# Chemical quality of fruit flavoured yoghurt by using litchi fruit (*Litchie chiensis* L.)

RITESH BALASO WATHARKAR AND N.G. DEVSHETE

Chemical quality of fruit flavoured yoghurt by using litchi fruit were evaluated. Raw buffalo milk was standardized to 6 per cent fat. Fruit juice of fully ripened litchi fruit were used for preparation of yoghurt. Yoghurt was prepared from buffalo milk with incorporation of litchi fruit at different level which were 0 per cent litchi fruit juice ( $T_0$ ), 2 per cent litchi fruit juice ( $T_1$ ), 4 per cent litchi fruit juice ( $T_2$ ) and 6 per cent litchi fruit juice ( $T_3$ ). It was observed from the result that highest fat content and acidity was observed in control ( $T_0$ ) i.e. 2.89 and 0.80, per cent, respectively than rest of all treatments. Total solid content was highest in treatment  $T_3$  (addition of 6 per cent litchi juice) i.e. 22.07 per cent. The acidity of yoghurt showed a declining trend with an increase in the level of litchi juice. It may be concluded that good quality fruit flavoured yoghurt can be prepared by fortifying it with up to 4 per cent litchi juice.

**Key Words :** Yoghurt, Litchi fruit juice, Buffalo milk, Fat, Acidity, Total solid

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## INTRODUCTION

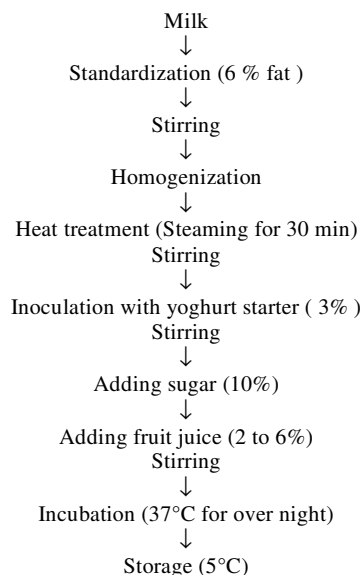
Yoghurt is produced by adding a 'starter' of active yoghurt containing a mixed culture of *Lactobacillus bulgaricus* L. and *Streptococcus thermophilus*. Yoghurt is valued for controlling the growth of harmful bacteria and in curing intestinal diseases like constipation, diarrhea, dysentery. Baked good will rise when yoghurt is used.

Recently, there has been an increasing trend to fortify the product with fruit juice/pulp. Fruits are considered good source of minerals and vitamins and hence, supplementation of yoghurt with fruit will not only improve its flavour but also its overall nutritional quality. Traditionally fruits like strawberry, raspberry, apricot and blackcurrant are used.

Litchi (*Litchie chiensis* L.) belongs to family Sapindaceae and one of the most delicious, refreshing and perishable subtropical food of India. Its juice is cooling, nutritive and good source of minerals.

## METHODOLOGY

Standard buffalo milk with 6 per cent fat required for the study was obtained from local market of sawarda. Plane yoghurt with low fat and high protein was purchased from the Parsi Dairy (Mumbai). Fully ripened litchi fruits were used for



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preparation. For preparation of fruit flavoured yoghurt, litchi fruits were used in different levels viz., T<sub>0</sub>: Control, T<sub>1</sub>: 2 per cent litchi fruit juice, T<sub>2</sub>: 4 per cent litchi fruit juice, T<sub>3</sub>: 6 per cent litchi fruit juice. The trial was carried out with three replications. Fruit flavoured yoghurt was analyzed for fat, total solids and acidity as per the procedure recommended in IS (1961).

Fruit/sweetened yoghurt was prepared as per the procedure described by Singh (1979).

### OBSERVATIONS AND ASSESSMENT

Chemical quality of fruit flavoured yoghurt was determined by using standard methods BIS (1968). Chemical composition of fruit juice used for fruit flavoured yoghurt is given in Table 1. The figures tabulated in Table 1 reveal that fruit juice had average fat 0.15, total solid 22.70 and titratable acidity 0.30 per cent.

**Table 1.** Chemical composition of litchi juice (Per cent)

Fat	0.15
Total solid	22.70
Acidity	0.30

Chemical composition of fruit flavored yoghurt is given in Table 2. It is observed from the result presented in Table 2 that the average fat content of yoghurt was 2.80 per cent. The highest fat content was observed in control T<sub>0</sub> (2.89 per cent) and the lowest in yoghurt containing 6 per cent, litchi juice in T<sub>3</sub> (2.73) i.e. It indicates that there was no appreciable change in milk fat. The finding is in agreement with that of Laxminarayana (1984), who reported that the milk fat was not affected by starter bacteria. Similarly, Webb and Johnson (1965) reported that there was no appreciable change in the fat content due to activity of starter bacteria. Vorbeck *et al.* (1963) reported that slight reduction in fat content during conversion of milk to yoghurt may be attributed to hydrolysis of fat to supply essential components for synthesis of protoplasm.

**Table 2.** Sensory evaluation of fruit flavoured yoghurt (Per cent)

Treatments	Fat	Total solid	Titratable acidity
T <sub>0</sub>	2.89	21.99	0.80
T <sub>1</sub>	2.83	22.00	0.77
T <sub>2</sub>	2.78	22.02	0.73
T <sub>3</sub>	2.73	22.07	0.71
Mean	2.80	22.02	0.75

The mean of total solid content of all the treatments and replication was 22.02 per cent. It was the highest in treatment T<sub>3</sub> i.e. addition 6 per cent litchi juice (22.07%) and the lowest in treatment T<sub>0</sub> i.e. control (21.99%). The observations of this study are in arrangement with those of Kroger and Weaver (1973).

The mean acidity of yoghurt of all treatments and replications was 0.75 per cent. The acidity of yoghurt showed a declining trend with an increase in the level of litchi juice. The highest acidity was observed in control T<sub>0</sub> i.e. (0.80%), whereas, the lowest was observed in T<sub>3</sub> treatment i.e. 6 per cent litchi juice (0.71%) Sharma (1981). In Netherlands, it is stipulated that the yoghurt should have an acidity of 0.72 to 1.17 per cent lactic acid (Robinson and Tamime, 1975). According to ISI (1974), the maximum lactic acidity in yoghurt should be 0.8 per cent.

### Conclusion:

From the result of the present investigation, yoghurt fortified with fruit pulp or juices enriches that is quality as well as gives appealing colour and pleasing flavour to product, it may be concluded that a good quality fruit flavoured yoghurt can be prepared by fortifying it with up to 4 per cent litchi juice. Use of litchi juice more than 4 per cent level for fortification of yoghurt did not show any beneficial effect. The highest fat content was observed in control T<sub>0</sub> (2.89%) and the lowest in yoghurt containing 6 per cent. Litchi juice in T<sub>3</sub> (2.73). Total solid was the highest in treatment T<sub>3</sub> i.e. addition 6 per cent litchi juice (22.07%) and the lowest in treatment T<sub>0</sub> i.e. control (21.99%). The highest acidity was observed in control T<sub>0</sub> i.e. 0.80 per cent, whereas, the lowest was observed in T<sub>3</sub> treatment i.e. 6 per cent litchi juice (0.71%).

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