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## Effect of different level of *Aloe vera* juice on chemical composition of lassi

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#### Abstract

The present investigation entitled “Utilization of *Aloe vera* (*Aloe vera* spp.) juice for preparation of lassi” was undertaken during the year 2019-2020. Milk was fermented with starter culture to dahi and the lassi was prepared with different combinations of dahi and *Aloe vera* juice in proportion of 100:0 (T<sub>1</sub>), 96:4 (T<sub>2</sub>), 92:8 (T<sub>3</sub>), 88:12 (T<sub>4</sub>) and 84:16 (T<sub>5</sub>) with five treatments and four replications in completely randomized design (CRD). The data observed that the chemical composition of lassi i.e. moisture were significantly increased while protein, total solids, fat, ash and acidity percentage significantly decreased with increased levels of *Aloe vera* juice. Lassi prepared by blending with 8 parts of *Aloe vera* juice (T<sub>3</sub>) has 3.50 per cent fat, 11.53 per cent T.S., 0.82 per cent acidity, 3.02 per cent protein, 88.47 per cent moisture, 4.29 pH and 0.55 per cent ash.

**Keywords:** milk, *Aloe vera* juice, lassi, chemical composition

#### Introduction

Among the health foods of dairy origin, fermented products top the list. Products derived from fermentation of milk result in conservation of valuable nutrients, which otherwise would deteriorate rapidly, conversion into distinctive viscous consistency, smoothness and texture with typical flavour. Furthermore, fermentation provides food safety, portability and novelty for the consumer. Lassi is one of the very important and most popular fermented milk products.

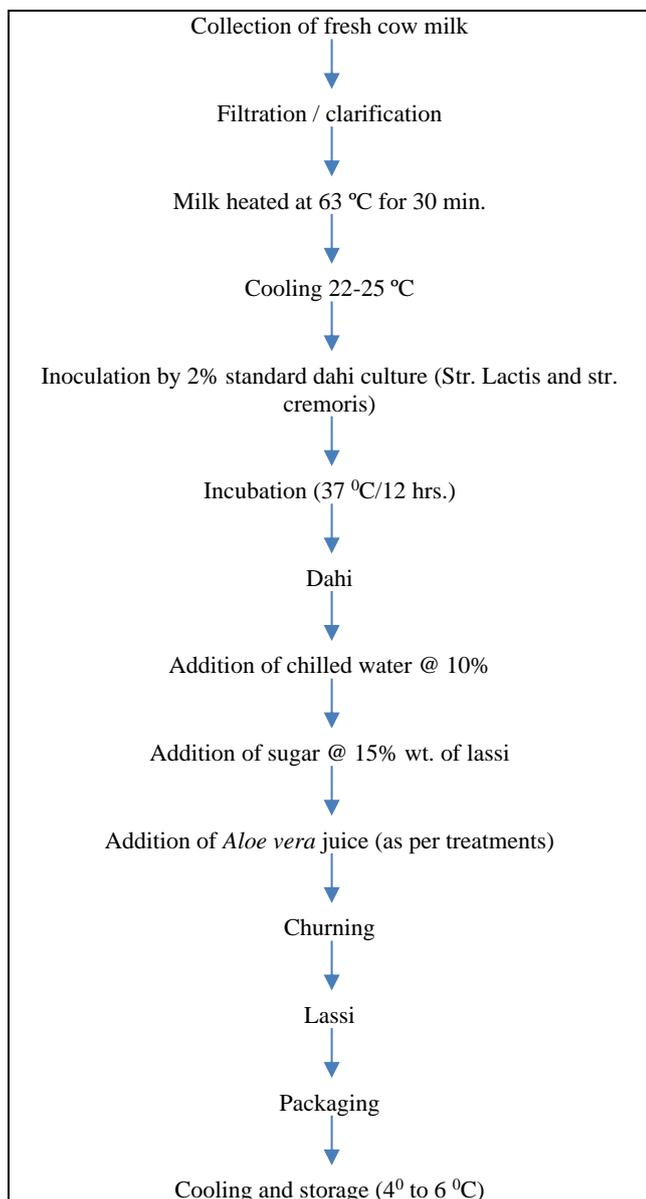
Lassi is described as a fermented milk beverage obtained after the growth of selected culture, usually lactic streptococci in heat treated whole or partially skimmed milk followed by sweetening with sugar. (Krishna *et al.* 2013).

Waller *et al.* (1978) observed that *Aloe vera* juice, about 99.2% water, contains carbohydrates, glucose and polyuronide. He also showed that *Aloe barbadensis* leaves contain various amino acids with the highest concentration of arginine (449mole/100g), followed by asparagines (344mole/100g), glutamate (294mole/100g), aspartame (237mole/100g) and serine (224mole/100g). Cholesterol, campesterol, b-sitosterol and lupeol were found in substantial amounts in the lipid fraction.

Ahmed *et al.* (2012) studied the proximate composition of *Aloe vera*. The ash, crude protein, crude fibre, crude fat and ascorbic acid content of the *Aloe vera* as 16.88, 6.86, 73.35, 2.91 and 0.004 per cent, respectively.

#### Material and Methods

Freshly picked *Aloe vera* leaves were washed under tap water to remove dust and dirt. The leaves cut from bottom as well as both sides and allow to soaked for 15 min. To remove yellow exuded which is toxic. The slimy mucilage and transparent gel taken out with the help of peeler. The green part removes properly and the *Aloe vera* gel was then macerated in a grinder and subsequently filtered through musline cloth to separate the fiber and get the juice as per treatments which is use for the study. The present study was undertaken to “Utilization of *Aloe vera* (*Aloe vera* spp.) juice for preparation of lassi”. The preparation of lassi was undertaken at the Section of Animal Husbandry and Dairy Science, College of Agriculture, Nagpur. The lassi was prepared by addition of dahi and *Aloe vera* juice in proportion of 100:0 (T<sub>1</sub>), 96:4(T<sub>2</sub>), 92:8 (T<sub>3</sub>), 88:12 (T<sub>4</sub>) and 84:16 (T<sub>5</sub>) treatments with addition of 15 per cent of sugar.



Flow diagram Preparation of lassi

## Results and Discussion

*Aloe vera* juice were subjected for the proximate analysis viz. fat, protein, total solids, moisture, ash, acidity, pH. The results obtained on account of these parameters are presented in table 1.

## Chemical Composition of Lassi

**Table 1:** Average physico-chemical attributes of lassi prepared with different levels of *Aloe vera* juice (percent)

Treatments	Fat	Protein	Total Solids	Moisture	Ash	Acidity	pH
T <sub>1</sub>	3.80 <sup>a</sup>	3.30 <sup>a</sup>	12.47 <sup>a</sup>	87.52 <sup>a</sup>	0.58 <sup>a</sup>	0.88 <sup>a</sup>	4.32 <sup>a</sup>
T <sub>2</sub>	3.65 <sup>b</sup>	3.19 <sup>a</sup>	12.04 <sup>b</sup>	87.97 <sup>b</sup>	0.56 <sup>b</sup>	0.85 <sup>b</sup>	4.30 <sup>b</sup>
T <sub>3</sub>	3.50 <sup>c</sup>	3.02 <sup>a</sup>	11.53 <sup>c</sup>	88.47 <sup>c</sup>	0.55 <sup>c</sup>	0.82 <sup>c</sup>	4.29 <sup>c</sup>
T <sub>4</sub>	3.35 <sup>d</sup>	2.94 <sup>b</sup>	11.05 <sup>d</sup>	88.98 <sup>d</sup>	0.54 <sup>d</sup>	0.79 <sup>d</sup>	4.28 <sup>d</sup>
T <sub>5</sub>	3.20 <sup>e</sup>	2.81 <sup>b</sup>	10.57 <sup>e</sup>	89.39 <sup>e</sup>	0.52 <sup>e</sup>	0.75 <sup>e</sup>	4.27 <sup>e</sup>
S.E. ±	0.0137	0.0152	0.0127	0.0226	0.0047	0.0075	0.0041
C.D @ 5%	0.041	0.0459	0.0384	0.0682	0.0144	0.0227	0.124
Results	Sign.	Sign.	Sign.	Sign.	Sign.	Sign.	Sign.

## Fat

The highest fat content in (3.79 per cent) was observed for

treatment i.e. without *Aloe vera* juice (T<sub>1</sub>) and the lowest (3.20 per cent) for treatment T<sub>5</sub> i.e. 16 per cent level of *Aloe vera* juice. Fat content of lassi was gradually decreased with the increase in level of *Aloe vera* juice.

## Protein

The maximum protein content (3.30 per cent) was noticed in lassi without *Aloe vera* juice i.e. T<sub>1</sub>, whereas the lowest (2.81 per cent) was recorded in lassi with 16 per cent *Aloe vera* juice i.e. T<sub>5</sub>. Protein content of lassi decreased with an increase in the level of *Aloe vera* juice.

## Total solids

The highest total solids (12.47%) was observed in lassi at treatment T<sub>1</sub> i.e. at without *Aloe vera* juice and the lowest (10.57%) for treatment i.e. lassi with 16 per cent *Aloe vera* juice (T<sub>5</sub>). Addition of *Aloe vera* juice gradually decreased the total solids of lassi.

## Moisture

The highest moisture content in lassi (89.40%) was observed in treatment T<sub>5</sub> i.e. with 16 per cent *Aloe vera* juice and lowest (87.52%) in treatment T<sub>1</sub> i.e. without *Aloe vera* juice. Addition of *Aloe vera* juice increased the protein content of lassi.

## Ash

Ash content of lassi was decreased due to the addition of different levels *Aloe vera* juice. The highest ash content in lassi (0.58%) was observed in treatment T<sub>1</sub> i.e. without *Aloe vera* juice and lowest (0.52%) in treatment T<sub>5</sub> i.e. 16 per cent level of *Aloe vera* juice.

## Acidity

Acidity content of lassi was decreased due to the addition of different levels *Aloe vera* juice. The highest acidity content in lassi (0.88%) was observed in treatment T<sub>1</sub> i.e. without *Aloe vera* juice and lowest (0.75%) in treatment T<sub>5</sub> i.e. 16 per cent level of *Aloe vera* juice.

## pH

pH content of lassi was decreased due to the addition of different levels *Aloe vera* juice. The highest pH content in lassi (4.32) was observed in treatment T<sub>1</sub> i.e. without *Aloe vera* juice and lowest (4.27) in treatment T<sub>5</sub> i.e. 16 per cent level of *Aloe vera* juice.

## Conclusion

The chemical composition of lassi i.e. moisture were significantly increased while total solids, fat, ash and acidity, pH, and protein percentage significantly decreased with increased levels of *Aloe vera* juice.

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