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Preparation of herbal shrikhand using lemongrass and *Aloe vera*

¹Raziya Ansari, ²AA Broadway, ³Anamika Das and ³Shiv Bhushan Singh

¹Ph.D. Scholar, Warner College of Dairy Technology, SHUATS, Allahabad, Uttar Pradesh, India

²Professor, Warner College of Dairy Technology, SHUATS, Allahabad, Uttar Pradesh, India

³Assistant Professors, Warner College of Dairy Technology, SHUATS, Allahabad, Uttar Pradesh, India

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Corresponding Author: Raziya Ansari

Abstract

Shrikhand is an Indian fermented dairy product, known for its sweet-sour taste, help to improve the overall quality of diet. The investigation was carried out to increase its therapeutic, nutritional as well as sensory characteristics by adding herbs Lemongrass and *Aloe vera*. Lemongrass and *Aloe vera* was added at different level of combination (i.e. 2.5%, 4.5%, 6.5%) and (2%, 4%, 6%) respectively to increase its natural flavour, nutritional and therapeutic value in shrikhand. Whole study was deeply analysed with herbal shrikhand (i.e. Colour and Appearance, Body and Texture, Flavour and Aroma and Overall Acceptability) judged by trained members on 9 point hedonic scale, in which T₇ (6.5% Lemongrass + 2% *Aloe vera*) was found to be best among the treatments.

Keywords: Shrikhand, *Aloe vera*, lemongrass, sensory analysis

Introduction

Shrikhand is known for its soft, sweet-sour, creamery, traditional fermented milk product prepared by using strain of lactic acid bacteria. Sugar is added as additive to the shrikhand to make better taste, sugar is less than 70% hence, does not have any preservative effect, other natural garnishing additive like dry fruits are added to make better flavour. It will not contain any added colouring and artificial flavouring substances. The name shrikhand is derived from the Sanskrit word 'shrikharini'. Shrikhand is a pop Indian dessert in western part, especially in Maharashtra, Karnataka and Gujarat. It is used as a festive sweet in India and in western India it is traditionally made at home. It is summer refreshing; it is very germinal in terms of flavour and is an excellent mouth-watering party dessert broadly used as a sweet dish after meals. It is also known for its palatability high nutritive, taste, and possible therapeutic value. Due to its low fat and sugar content it can be recommended as health food for specific patient suffering from fatness and cardiovascular disease, is the vigorous component of the human diet in India. Apart from imparting nutrition and novelty, it helps to preserve the previous nutrients in milk which is tends to quick deterioration. An estimated that 50 to 55% of milk produced in India is converted into a variety of traditional milk product, 7% of total milk produced mainly includes three products dahi (curd), shrikhand and yoghurt.

Aloe vera

Aloe vera is a popular plant well known for its medicinal and therapeutic properties. It is currently being used on large scale as a valuable ingredient for the food,

pharmaceutical and cosmetic industries. There are more than 300 species of *Aloe vera* and of these only 4 or 5 are commonly used in medicine and *barbadensis* is most widely used species of *Aloe vera*. *Aloe vera* is thick, short stemmed plant that stores water in its leaves. *Aloe vera* is well recognized by its fleshy green leaves, thick, pointed and each leaf is filled with water filled tissue is the 'gel' we associated with *Aloe vera* products. Gel contains most of bioactive compounds in the plant, including vitamins, minerals, and amino acids and anti oxidants. *Aloe vera* has potent anti oxidant and antibacterial properties, used to treat mouth ulcers, constipation, lower blood sugar levels in diabetics, strength immunity power, protect against tumours, fight against inflammation. All essential nutrients are present in *Aloe vera*.

Lemon grass

Lemongrass (*Cymbopogon flexuosus*) some species are cultivated as culinary and medicinal herb because of their scent similar to lemon. For centuries, it is used as a medicine because of its therapeutic properties included relief in ulcer, rheumatic and other pain. Flavonoids extracted from lemongrass are of considerable interest as natural plant components with antioxidant and antifungal activity. It is a tropical grass native to southern parts of India and Sri Lanka. It yields aromatic oil that is used as flavouring, and perfumery and medicine. Herbal tea of lemon grass is used as immune stimulant and good appetizer in India. At the same time makes the products more palatable and acceptable to a large group of consumers as it has been used in many food stuff including bakery and confectionary. It is widely used as an essential ingredient in

Asian cuisines due to its sharp lemon flavour. Lemongrass is generally recognised as safe (GRAS) in the United States. Lemon grass also contains very few calories. It contains 99 calories for every 100 grams, but there is no cholesterol present. Some of the vitamins present in the herb are thiamine (vitamin B-1), pyridoxine (vitamin B-6), and pantothenic acid (vitamin B5). The parts of the herb, whether dried or fresh, are rich in minerals such as magnesium, copper, manganese, iron, calcium, zinc, and potassium.

Materials and Methods

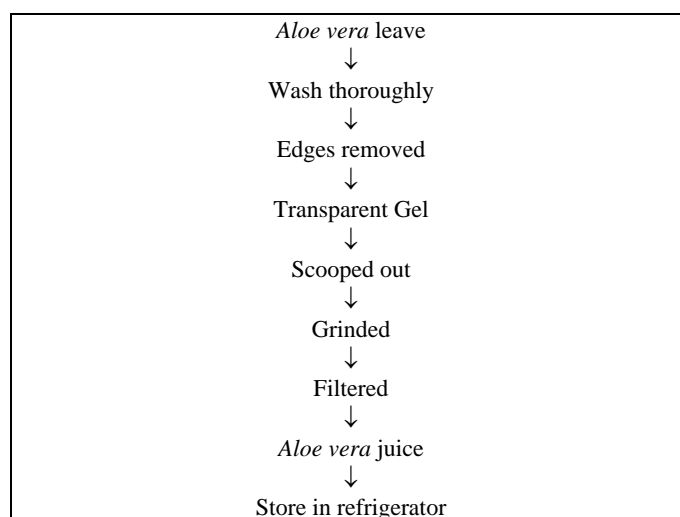
Procurement of raw materials

1. **Milk:** It was collected from Student's Training Dairy, SHUATS, Prayagraj.

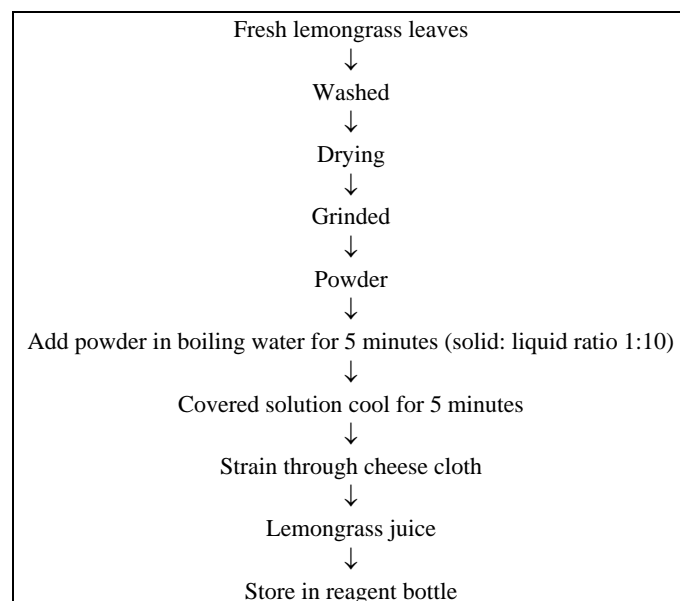
2. **Aloe vera:** It was collected from Department of Horticulture, SHUATS, Prayagraj.
3. **Lemongrass:** It was collected from Department of Horticulture, SHUATS, Prayagraj.
4. **Sugar** : Sugar was collected from local market of Prayagraj.
5. **Starter culture:** Starter culture (NCDC-167) was collected from NDRI, Karnal.

Milk

Whole milk was collected from the local market of Allahabad and standardized to (6% fat and 9% SNF). All the primary operations like filtration, clarification was carried out.



Preparation of *Aloe vera* Juice

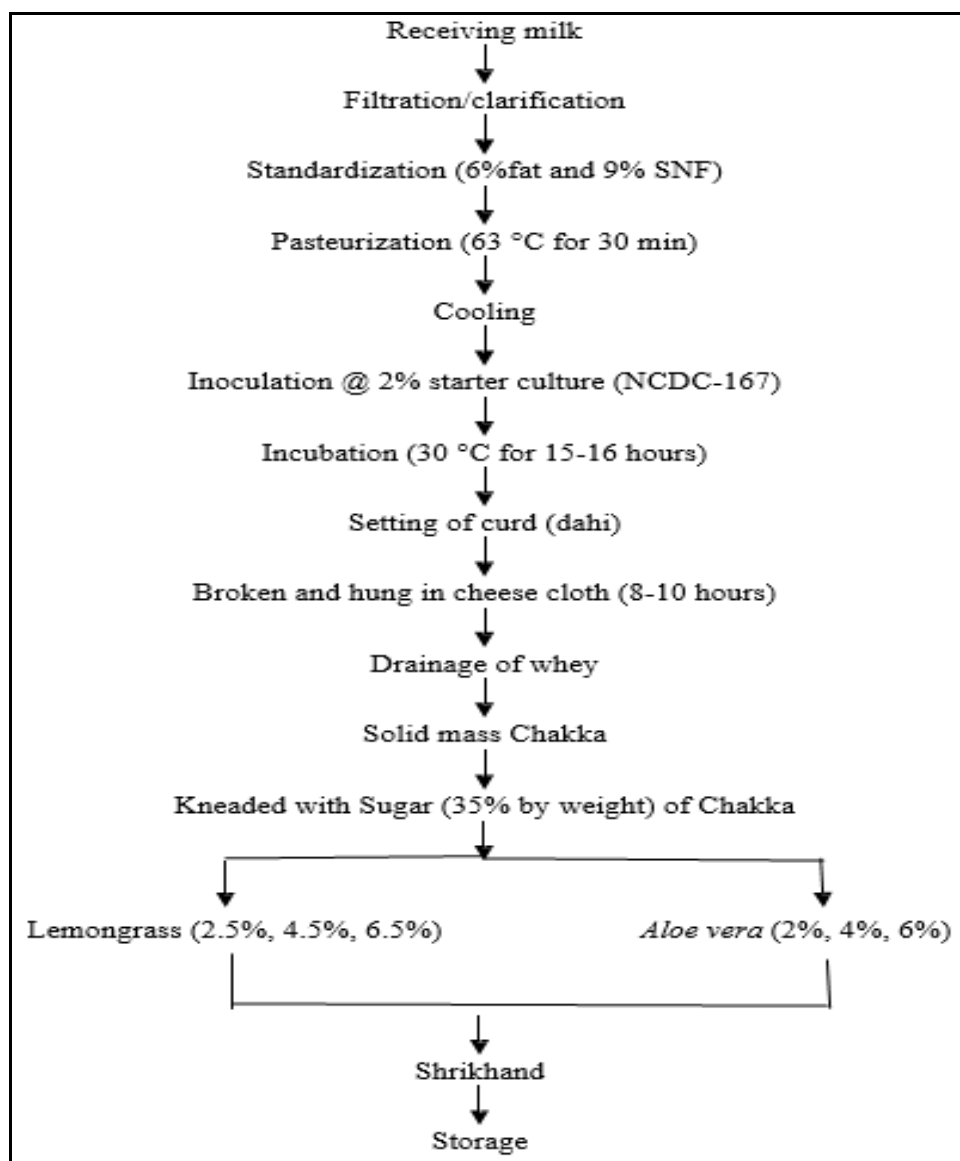


Preparation of lemongrass juice

Treatment Details

T₁ = Shrikhand with 2.5% Lemongrass and 2% *Aloe vera* T₂ = Shrikhand with 2.5% Lemongrass and 4% *Aloe vera* T₃ = Shrikhand with 2.5% Lemongrass and 6% *Aloe vera* T₄ = Shrikhand with 4.5% Lemongrass and 2% *Aloe vera* T₅

= Shrikhand with 4.5% Lemongrass and 4% *Aloe vera* T₆ = Shrikhand with 4.5% Lemongrass and 6% *Aloe vera* T₇ = Shrikhand with 6.5% Lemongrass and 2% *Aloe vera* T₈ = Shrikhand with 6.5% Lemongrass and 4% *Aloe vera* T₉ = Shrikhand with 6.5% Lemongrass and 6% *Aloe vera*



Flow diagram adopted for manufacturing of experimental product

Results and Discussion

Table 1: Sensory Score (9 point hedonic scale)

Parameters	Colour and Appearance	Body and Texture	Flavour and Aroma	Overall Acceptability
T ₁	8.20	8.15	8.18	8.22
T ₂	8.03	8.10	8.16	8.29
T ₃	8.11	8.00	8.21	8.26
T ₄	8.12	8.12	8.22	8.30
T ₅	8.13	8.15	8.23	8.27
T ₆	8.15	8.16	8.20	8.29
T ₇	8.25	8.22	8.26	8.34
T ₈	8.23	8.20	8.23	8.33
T ₉	8.21	8.13	8.22	8.30
Mean	8.16	8.14	8.21	8.28
CD Value	0.047	0.04	0.03	0.052
Results	Significant	Significant	Significant	Significant

*Significant at 5% level

**Non-Significant at 5% level

Conclusion

Based on above results it may be concluded that shrikhand enriched with lemongrass and *Aloe vera* was very well utilized. In our study treatment T₇ (6.5% LEMONGRASS +

2% *ALOE VERA*) was scored maximum by panel of judges in all sensory reports were considered as acceptable shrikhand and used for further study.

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