

## Studies on Value Added Products of Guava Cheese

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### ABSTRACT

The present investigation was conducted during 2014-2015 in Processing Lab, Department of Horticulture, SHIATS, Allahabad. The experiment was conducted in Completely Randomised Design (CRD) with nine treatments, replicated thrice. The value added product was evaluated for its physico-chemical properties during storage. Nine treatments were included in the trial viz: T<sub>1</sub> Ginger powder (1.25%), T<sub>2</sub> Ginger powder (1.50%), T<sub>3</sub> Ginger powder (1.75%), T<sub>4</sub> Cardamom powder (1.25%), T<sub>5</sub> Cardamom powder (1.50%), T<sub>6</sub> Cardamom powder (1.75%), T<sub>7</sub> Lemon grass (1.25%), T<sub>8</sub> (Lemon grass (1.50%) and T<sub>9</sub> Lemon grass (1.75%) were tested in three replication. On the basis of evaluation of Guava cheese the T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%) was found superior in respect of all the parameters T.S.S (10.44<sup>o</sup>Brix), Total sugar (%) 8.52, pH (4.70) and overall acceptability score (8.37) after 90 days storage. The highest net returns (Rs. 132.96) and higher benefit cost ratio (2.08:1) was also found superior in T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%).

**Key words:** Guava Cheese, Cardamom, Ginger, Total sugar and Overall acceptability.

### INTRODUCTION

Guava (*Psidium guajava*) also called “Apple of Tropics”, originated in tropical America perhaps from Mexico to Peru and belongs to family Myrtaceae, Guava claims fourth most important fruit after mango, banana and citrus and has a high nutritive value that is why it is considered to be the poor man’s apple.

Uttar Pradesh is the largest producer of guava, followed by Maharashtra, Madhya Pradesh, Bihar and West Bengal. Uttar Pradesh ranks first both in area under cultivation (39890 hectare) and production (486720MT)<sup>5</sup>. The major guava producing areas in Uttar Pradesh are Allahabad,

Varanasi, Lucknow, Kanpur, Aligarh and Agra. Cultivation of guava is so naturalized in Uttar Pradesh that it is hard to believe it is not native to India.

Guava is a chief and rich source of vitamin “C” (300mg/100g pulp) and pectin (2.33%). It is also contains fair amount of calcium, phosphorus and vitamin A<sup>6,7</sup>. Guava is not only a delicious and nutritious table fruit but may also be utilized to make products like jam, jelly, cheese, juice, ice- cream, canned segments, nectar, RTS beverage dehydrated slice, flakes, toffee, sauce, guava lather, baby food puree, etc.

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However, the most common use of guava is for jelly preparation. Guava leaves are also used for curing diasshoea and for dyeing & tanning.

Fruit cheese has recently become very popular. It is a confection of the type of Karachi Halwa and is prepared from fruit like guava, apple, pear and plum Fruit Cheese has a longer shelf life and contains a minimum (9.43%) TSS and maximum (12.37) TSS prepared fruits.

### MATERIAL AND METHODS

The present investigation was conducted in Completely Randomised Design (CRD) with 9 treatments and 3 replications in the Processing Lab; Department of Horticulture, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad during 2012-2013.

Total Nine treatments were included in the trial viz; T<sub>1</sub> Ginger powder (1.25%), T<sub>2</sub>

Ginger powder (1.50%), T<sub>3</sub> Ginger powder (1.75%), T<sub>4</sub> Cardamom powder (1.25%), T<sub>5</sub> Cardamom powder (1.50%), T<sub>6</sub> Cardamom powder (1.75%), T<sub>7</sub> Lemon grass (1.25%), T<sub>8</sub> (Lemon grass (1.50%) and T<sub>9</sub> Lemon grass (1.75%) were tested in three replication.

Material used for cheese preparation (per kg.):

Sugar : 750 g/kg of pulp

Butter : 70 g/kg of pulp

Citric acid : 2g/kg of pulp

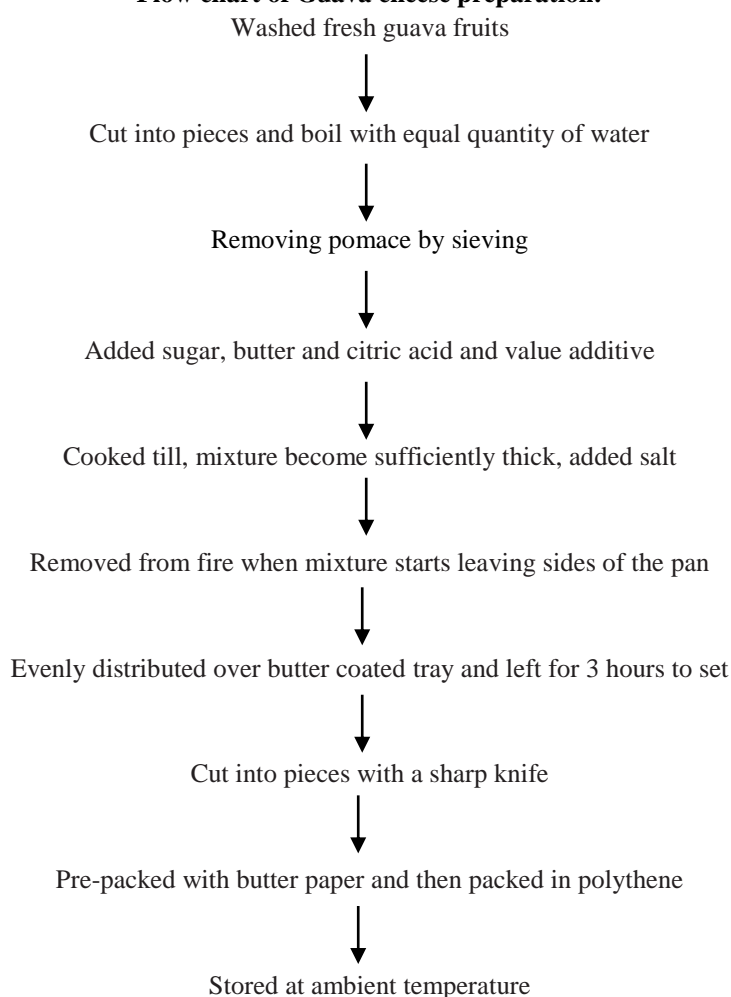
Value addition : 125g, 150g and

175g/kg (Ginger, Cardamom and Lemon grass) powder per kg guava pulp

Common Salt : 2g/kg of pulp

Best quality of sugar was used and the percentage of sugar was kept same for all varieties besides their difference in inherent sugar concentration, 2.5g of common salt per kilogram of pulp were also added just before the end point.

#### Flow chart of Guava cheese preparation:



**RESULTS AND DISCUSSION**

1. Total soluble solids of value added Guava Cheese showed an increasing trend during the entire storage period. The maximum score of TSS 10.44<sup>0</sup>Brix was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 10.40<sup>0</sup>Brix, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 10.15<sup>0</sup>Brix after 90 days storage.
2. An increasing trend in the total sugar of value added Guava Cheese was recorded during storage. The maximum score of Total sugar (%) 8.52 was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 8.51, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 7.96 after 90 days storage.
3. Reducing sugar of value added Guava Cheese showed increasing trend during storage period. The maximum score of Reducing Sugar 3.05 was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 3.02, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 2.91 after 90 days storage.
4. An increasing trend in the non-reducing sugar of value added Guava Cheese was recorded during storage. The maximum score of non-reducing sugar 5.61 was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 5.56, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 4.94 after 90 days storage.
5. Ascorbic acid content of value added guava cheese showed a decreasing trend during storage period. The maximum score of Ascorbic acid 127.45 was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%), followed by treatment T<sub>2</sub>. Guava cheese + Ginger powder (1.50%) 114.31, whereas the minimum score was observed in treatment T<sub>7</sub>. Guava cheese + Lemon grass (1.25%) 109.77 after 90 days storage.
6. Acidity (%) of value added Guava Cheese showed an increasing trend during the entire storage may be due to increase in time interval period. The maximum score of acidity (%) 0.494 was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%), followed by treatment T<sub>2</sub>. Guava cheese + Ginger powder (1.50%) 0.481, whereas the minimum score was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%) 0.439 after 90 days storage.
7. A decreasing trend in the pH of value added Guava Cheese was recorded till end of storage. The maximum pH 4.70 was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 4.68, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 4.24 after 90 days storage.
8. An increasing trend in the score for overall acceptability of value added Guava Cheese was recorded during storage. The maximum score of overall acceptability 8.37 was observed in treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%), followed by treatment T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%) 7.71, whereas the minimum score was observed in treatment T<sub>3</sub>. Guava cheese + Ginger powder (1.75%) 4.98 after 90 days storage.
9. The highest net returns (Rs. 248.33) and the highest cost benefit ratio (1:2.08) was recorded in T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%) and followed by 1: 1.90 in T<sub>4</sub>. Guava cheese + Cardamom powder (1.25%). However, all the other treatment were also significantly superior over the treatments. The lowest cost benefit ratio (1:1.59) was recorded in T<sub>7</sub>. Guava cheese + Lemon grass (1.25%). The maximum

net return and cost benefit ratio is recorded in T<sub>5</sub>, followed by T<sub>4</sub>.

### CONCLUSION

Based on findings of the present experiment it may be concluded that treatment T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%) was found superior in respect of all the parameters T.S.S (10.44°Brix), Total sugar (%) 8.52, pH (4.70) and overall acceptability score (8.37) after 90 days storage. The highest net returns (Rs. 132.96) and higher benefit cost ratio (2.08:1) was also found superior in T<sub>5</sub>. Guava cheese + Cardamom powder (1.50%).

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