



- **Potential of Using Aonla (*emblic officinalis*) to develop Value added Processed products**

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Introduction



Indian Gooseberry (Aonla Berry)

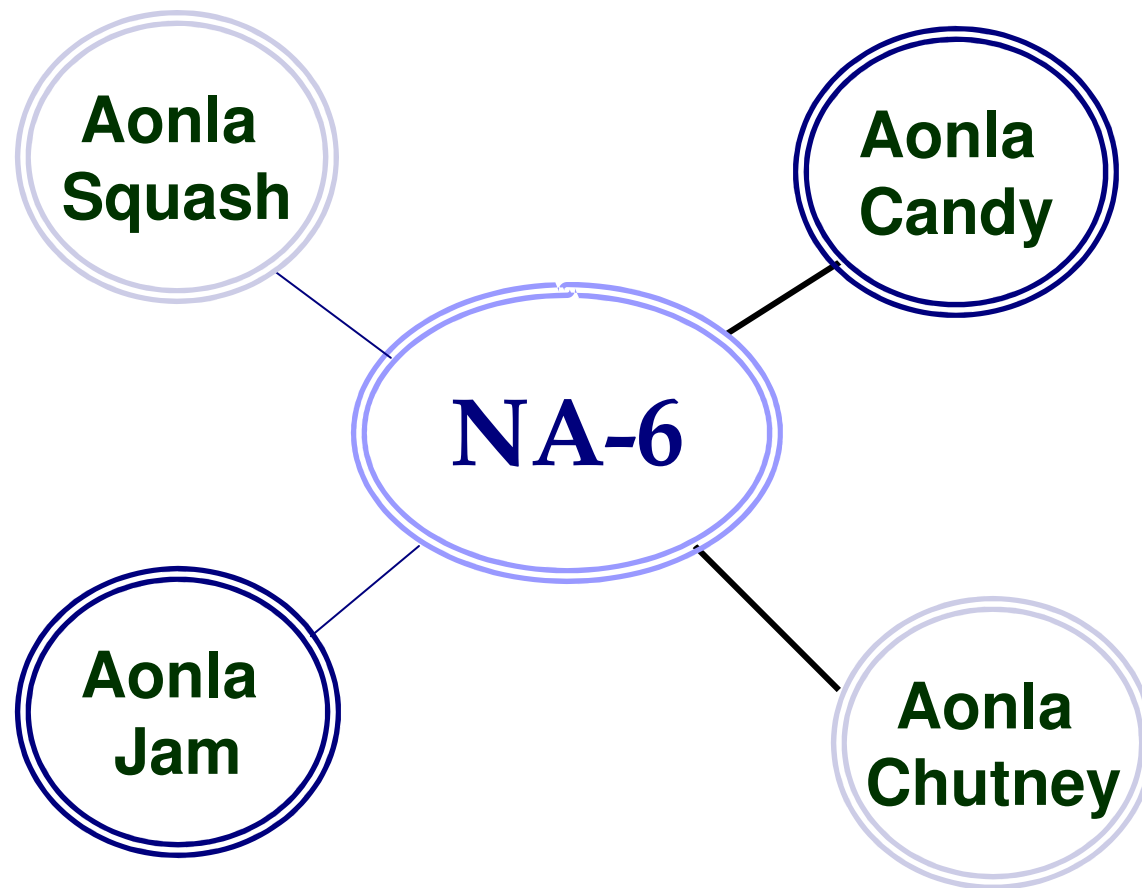
Aonla known as Indian gooseberry is one of the important non traditional fruit of Indian origin having immense potentiality of cultivation on marginal lands. The fruit is a very good source of vitamin C containing chemical substances called lucoanthocyanin and polyphenols which retard the oxidation of vitamin C. Aonla is not consumed as fresh in its raw state due to its highly acidic and astringent taste. Efforts made by producers are still lacking in manufacturing aonla based processed products. Thus the present investigation was carried out to develop processing techniques for making different aonla products which can be used at home scale as well as commercial level.

Methodology



- ❑ Development of Processed Products Based on Aonla .
- ❑ Nutritional Evaluation of the Developed Products.
- ❑ Shelf life Study of the Products.

Development of Processed Products Based on Aonla.





Wash the aonla fruits and prick them with steel fork

Soak the washed aonla fruit in salted water(2 %) for 3 days

Wash it and soak it again in Lime water (2.5%) for 4 days

Make a thick sugar syrup having three thread consistency.

Add aonla fruits while boiling of the syrup

Remove it from fire and allow it to cool

Remove fruits from syrup and cut it into pieces

Dry it under sunlight

Sprinkle powdered sugar over it and store at safe palce

**Aonla
Candy**



Wash the aonla fruit thoroughly



Deseed the fruit and cut it into pieces



Make a pulp of the aonla pieces in mixer



Pour the pulp along with the sugar or jaggery (60-65%)



Cook it for 10 minutes



Add all desired spices into it (Cardamom, Black salt, rock salt, common salt, red chili etc.)



Mix it well and allow to get cooled



Store in a sterilized glass jar





Wash the aonla fruit thoroughly

↓

Deseed the fruit and cut it into pieces

↓

Make a pulp of the aonla pieces in mixer

↓

Filter the pulp twice to remove the fiber and make it fine

↓

Pour the filtered pulp along with sugar (60 %)

↓

Cook it for 10- 15 minutes (use plate test /sheet test method)

↓

Before the end of the cooking add 1 % pectin and sodium benzoate (0.1%)

↓

Allow it it get cool at room temperature

↓

Pour it into sterilized glass jar





Wash the aonla fruit, lemon and ginger(proportion 1:2:4)

↓
Deseed the aonla fruit and cut it into pieces

↓
Extract Juice of the aonla pieces, ginger and lemon and mix

↓
Fill $\frac{3}{4}$ of the 1 liter glass bottle with sugar

↓
Pour juices into the bottle and shake well

↓
Place the bottle under sunlight

↓
Repeat this for 7 days (sugar would be completely dissolved)

↓
Shake it well and Store in a sterilized glass jar

**Aonla
Squash**

Nutritional Evaluation of the Developed Products.



☐ Moisture and Ascorbic acid
(Fresh weight basis)

☐ Crude protein , crude fat, total ash, fiber ,carbohydrate, energy
(on dry weight basis)

Shelf life Study of the Products.



William Goodenberg (Apple Berry)

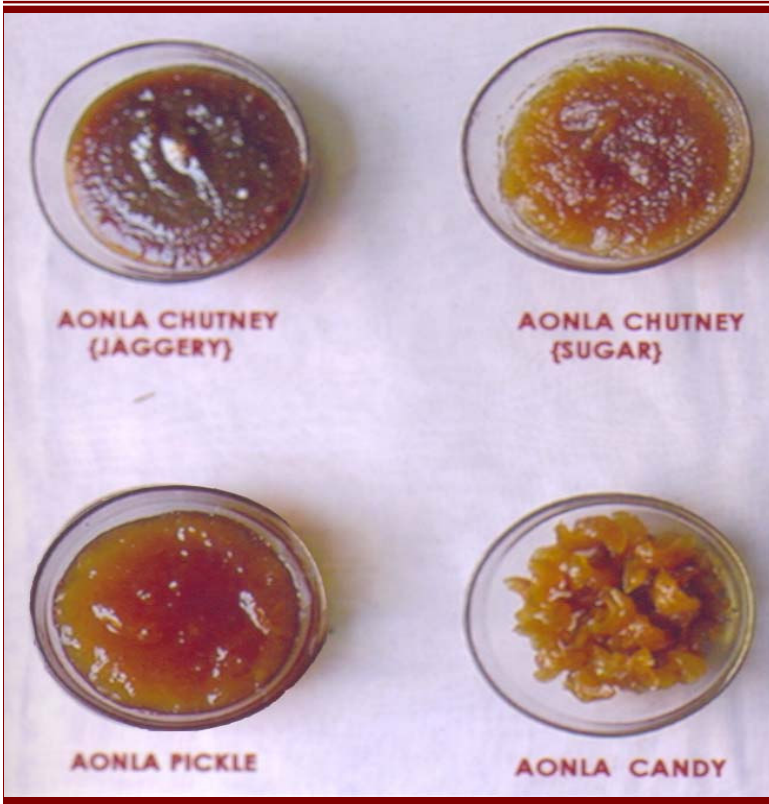
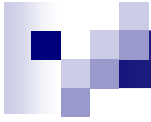
Sensory Evaluation

(on the basis of Sensory attributes)

Vitamin C retention

Microbial Quality

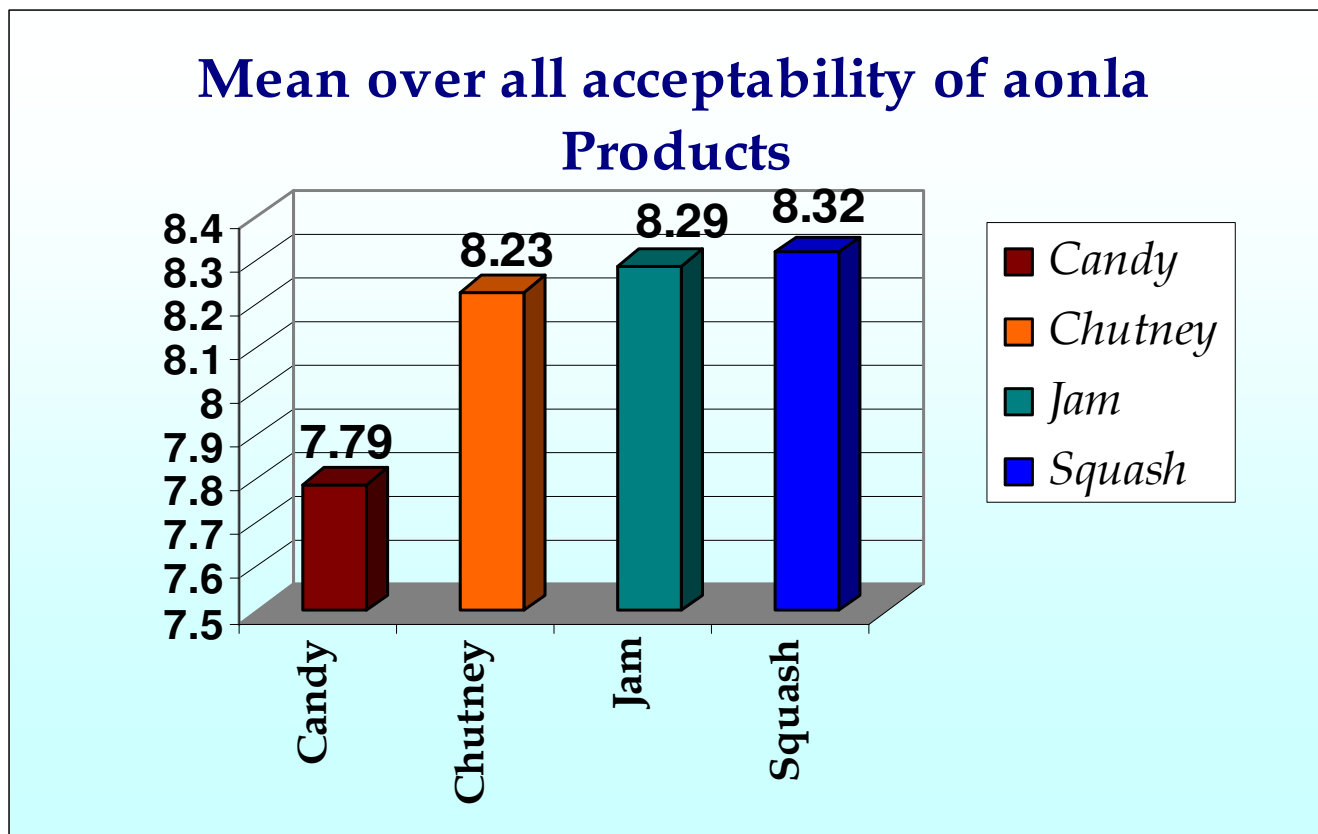
(total viable count)



Results and Conclusion



➤ Processing and standardization of aonla products:

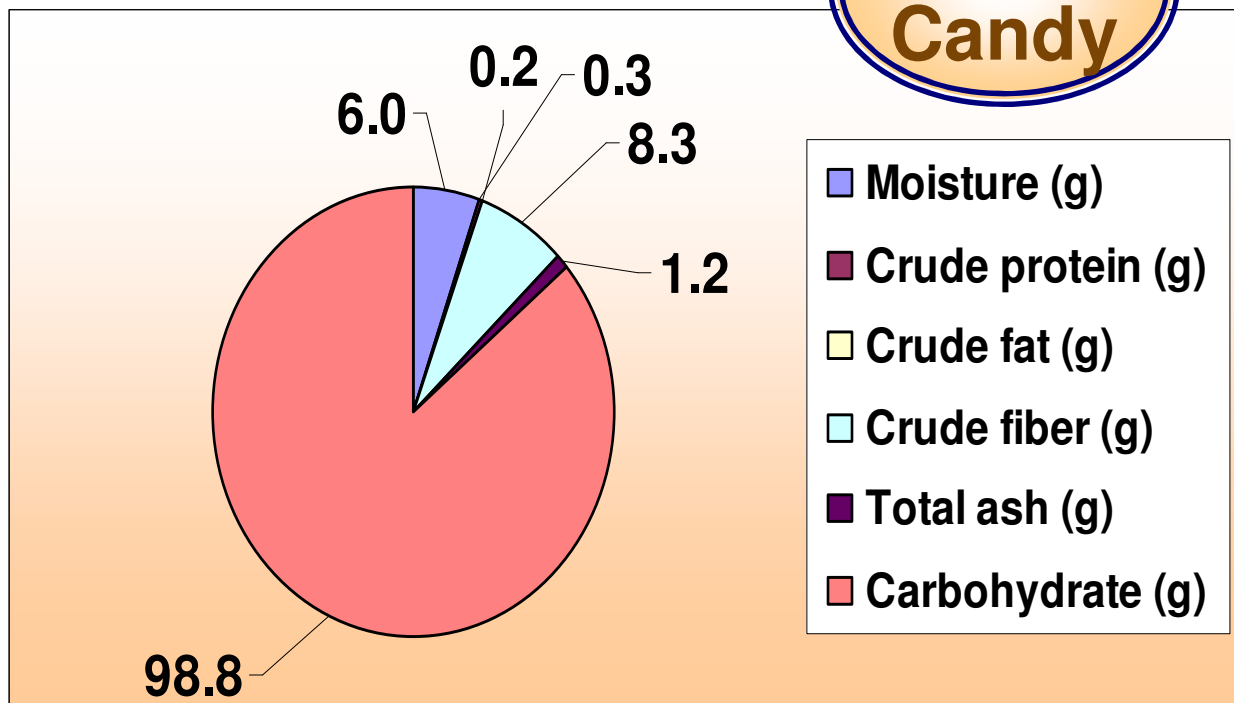


*All the scores are on nine point hedonic ranking scale.

➤ Nutritional Evaluation of aonla products:

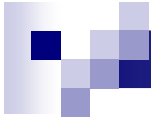


Aonla Candy

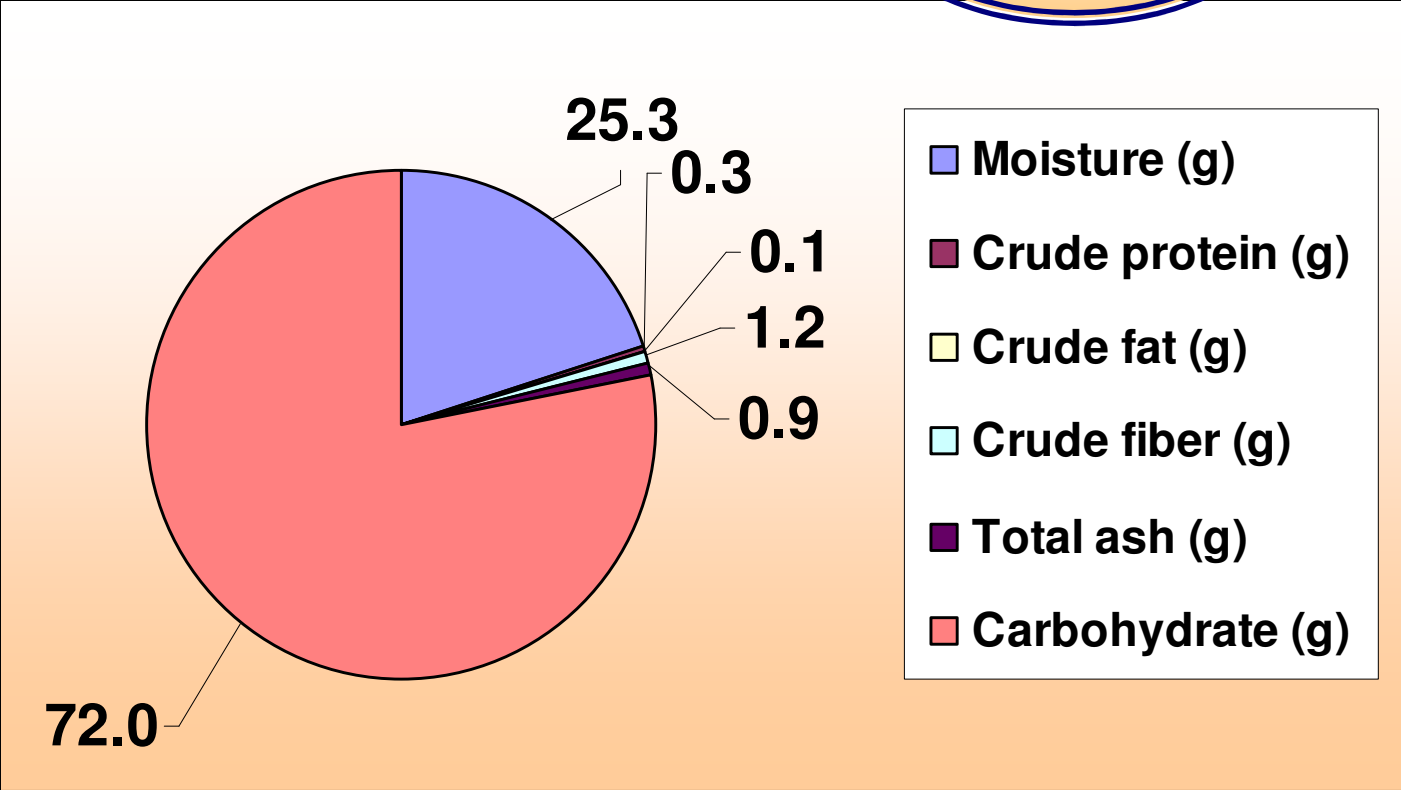


Energy
Ascorbic acid

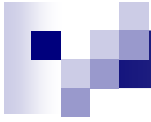
398 (Kcal)
210 (mg %)



Aonla Chutney



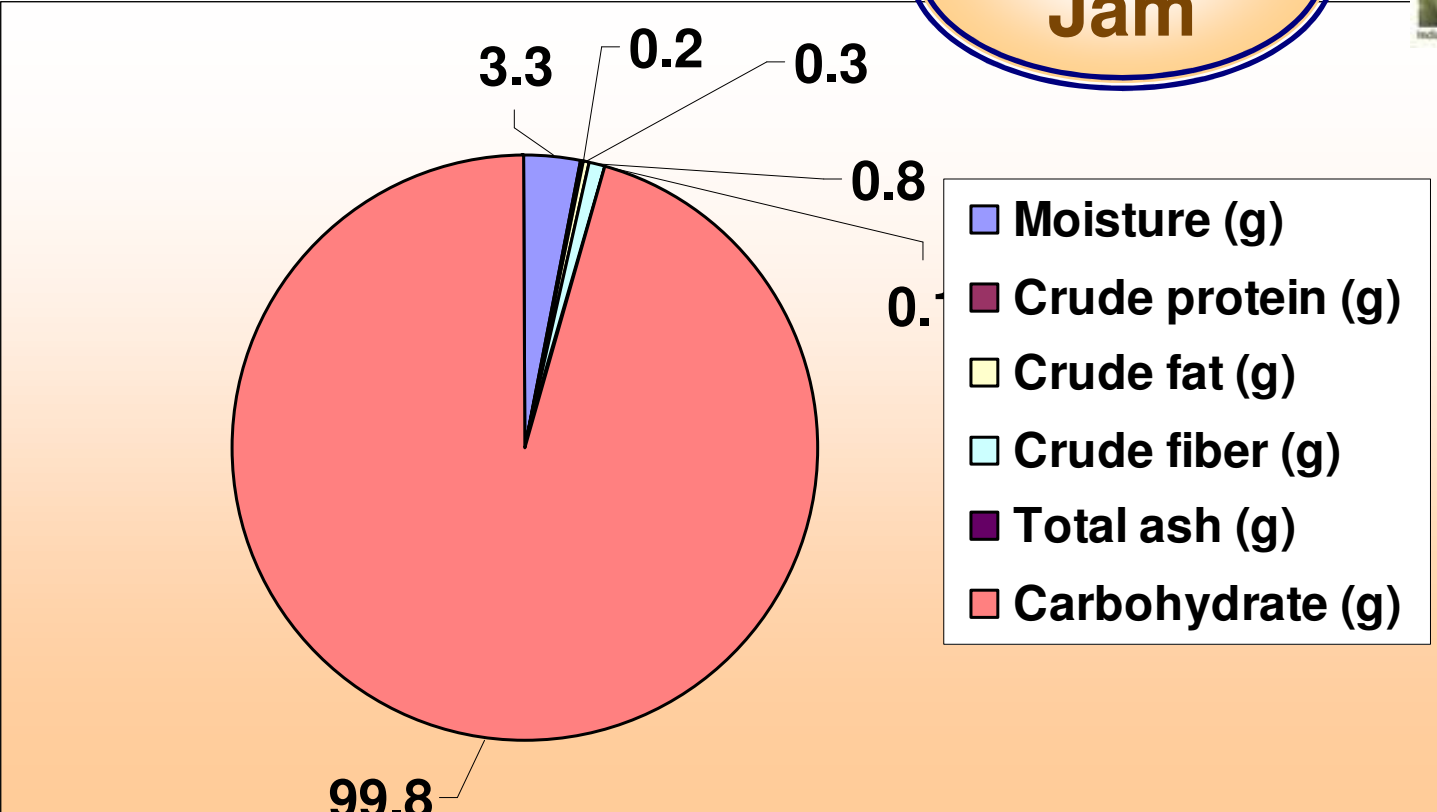
Energy 399 (Kcal)
Ascorbic acid 185.5(mg %)



Aonla Jam



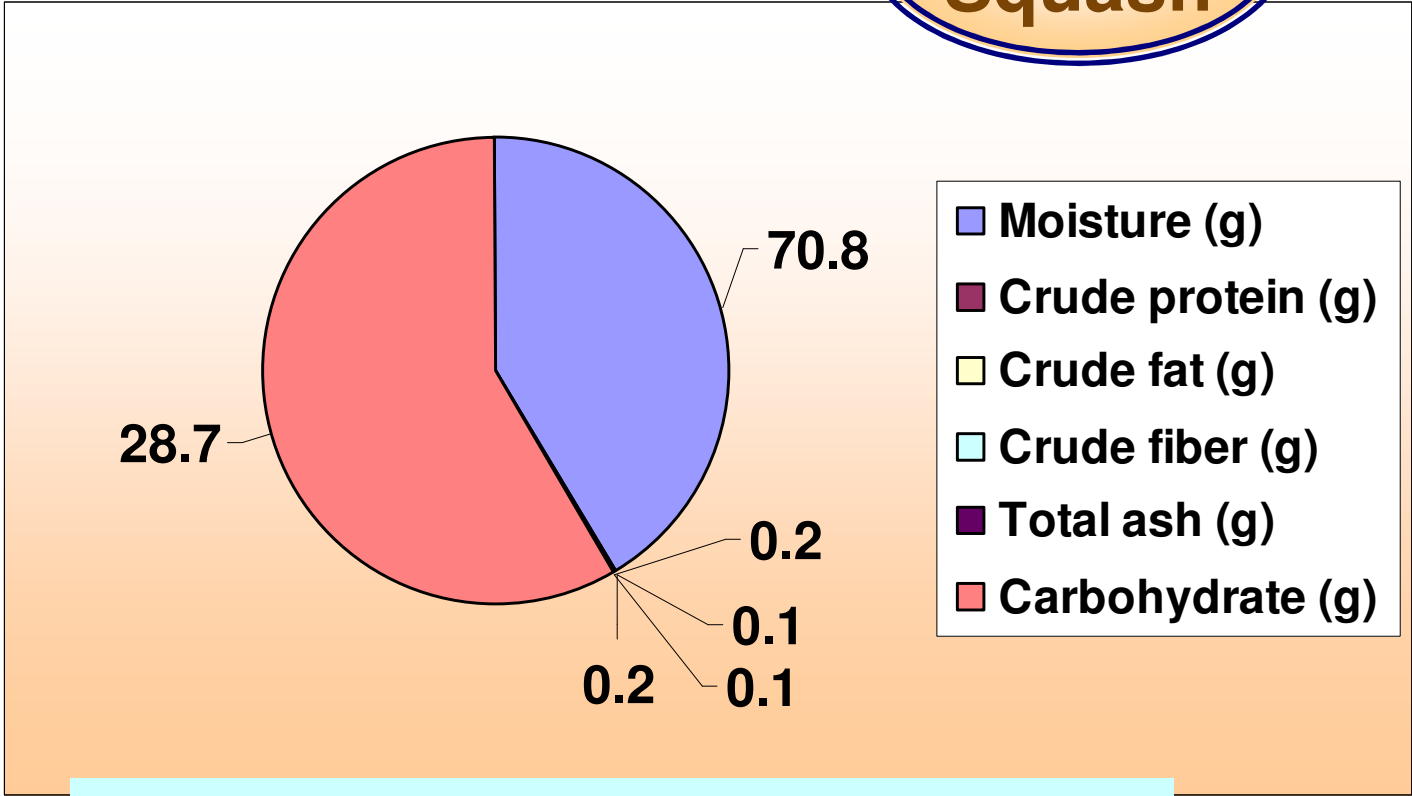
Indian Gooseberry (Amla Berry)



| | |
|----------------------|---------------------|
| Energy | 403 (Kcal) |
| Ascorbic acid | 149.5 (mg %) |



Aonla Squash

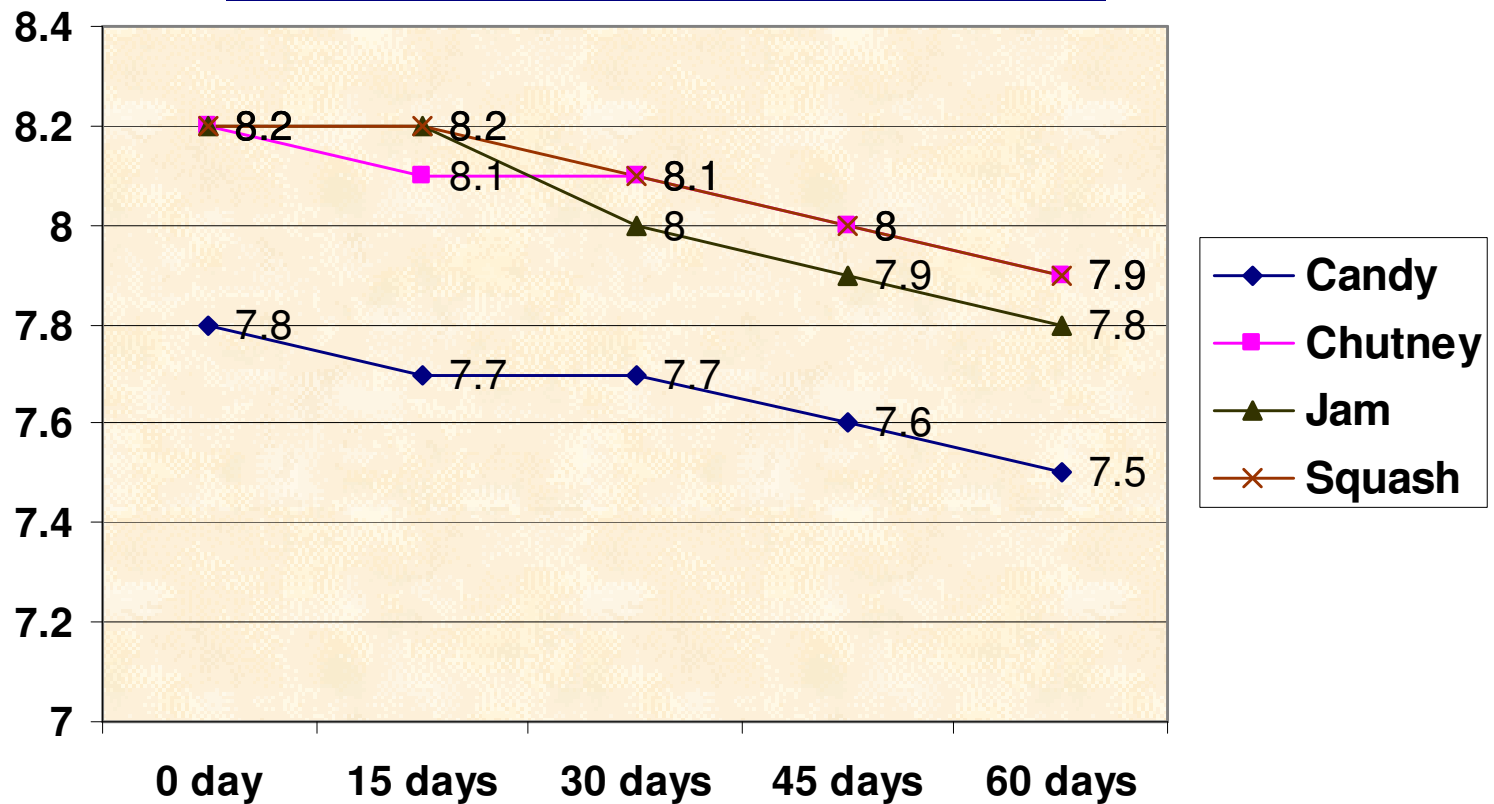


| | |
|----------------------|---------------------|
| Energy | 400 (Kcal) |
| Ascorbic acid | 210.8 (mg %) |

➤ Shelf life Study of the Products.



Sensory Evaluation *(on the basis of Sensory attributes)*



Vitamin C retention



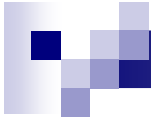
| Aonla | Ascorbic acid content of aonla products (mg/100g) during storage | | | | |
|----------|---|---------|---------|---------|---------|
| Products | 0 day | 15 days | 30 days | 45 days | 60 days |
| Candy | 210 | 150.6 | 126.3 | 105.6 | 85.4 |
| Chutney | 185.5 | 162.4 | 139.2 | 103.9 | 78.9 |
| Jam | 149.5 | 120.3 | 98.2 | 90.1 | 77.6 |
| Squash | 210.8 | 198.4 | 178 | 152 | 145.2 |

Microbial Quality (*total viable count*)



Indian Gooseberry (Aonla Berry)

| Aonla Products | Total Viable Count (CFU/g) of aonla Products during storage | | | | |
|----------------|---|-------------------|-------------------|-------------------|-------------------|
| | 0 day | 15 Days | 30 days | 45 Days | 60 Days |
| Candy | Nil | 0.2×10^2 | 0.9×10^2 | 0.1×10^3 | 0.5×10^3 |
| Chutney | Nil | 0.6×10^2 | 0.8×10^2 | 0.5×10^3 | 0.9×10^3 |
| Jam | Nil | Nil | Nil | Nil | Nil |
| Squash | Nil | Nil | Nil | Nil | Nil |



Cost Estimation

| Aonla Products | Cost /1 kg (in Rs.) |
|----------------|---------------------|
| Candy | 56/- |
| Chutney | 20/ |
| Jam | 36/- |
| Squash | 50/-(/Liter) |

Summery and Conclusion



The findings of the present study clearly indicate that there is a greater scope of processed aonla products. Inclusion of these products in diet defiantly help in improving the nutritional value of Indian meal. Low cost of the products as wall as good sensory , nutritional and shelf life qualities establish that the processed aonla products are appropriate for commercialization.