The coconut, a benevolent tree and nature’s gift to mankind, is a source of food, beverage, oilseed, fibres, timber, health products and also associated with mystery and omen in the life of people. It is eulogised, reverently as “Kalpavruksha”. Neera, a sweet sap tapped from the immature inflorescence of coconut too has a lot of health benefits and needs attention and promotion as nutritional drink.

Coconut Neera: nutritional drink needs promotion
Use of neera and its byproducts in India

In Gujarat, neera producing societies have formed the Federation of Gujarat Neera and Tadpadarth. Gramodyog Sangh has set up a filtration plant that processes neera to increase its shelf life. The Gujarat Neera and Tadpadarth Gramodyog Sangh established in 1991 has been trying to uplift the living standard of the tapers engaged in the production of neera. It is trying to increase the production of neera in the state by planting date palm trees, training of tapers.

In Maharashtra and Gujarat, neera is made available through various outlets known as ‘Neera Vikri Kendra’ (Neera sale centre). The Neera Palm Product Cooperative Society had set up small green kiosks that sold neera at major railway stations, but they are now only to be found alongside highways and expressways outside Mumbai city area. In the above two states the neera is extracted from date palm and pulmyrath trees. In Karnataka where there are abundant coconut trees neera is being tapped from coconut trees.

In Andhra Pradesh, neera is extracted and sold by the Goud caste. Unlike other states, there is no state government sponsorship/support to promote neera or its byproducts at retail outlets. Only Khadi and Village Industries Commission (KVIC) promotes neera as a health drink.

In Karnataka, neera is extracted and sold by Ediga and Billava castes. The state government constituted the Neera Board, comprising farmers, provincial government officials and neera training institutes, to inspect and control the quality of neera and its products, give approvals to labels, and develop various schemes for selling in the international market. The Central Food Technological Research Institute developed a technology to preserve neera for two months, and the government plans to promote neera as an energy drink with medicinal value, packaged in sachets and bottles.

In Kerala, the state government, as part of Kerala Vision 2010, set up three units to manufacture neera. In March first exclusive equipment store for neera tapping was opened in Kochi. The equipment, such as knife, knife cover, uniform apparel etc. needed by neera technicians, are the main items being distributed through the store now. The store also sells neera and its other value-added products from Coconut Producers’ Companies (CPCs) across the state. The store, christened, ‘Sneha’, aims to export neera extracting equipment in the near future.

In Tamil Nadu, neera which is called as ‘Padaaneer’ in Tamil, is traditionally extracted and sold by the Nadar caste. Also, KVIC and Tamil Nadu Palm Products Co-operative association sell refrigerated Padaaneer at their outlets.

In Orissa state, the state government established a cooperative organisation known as the Orissa State Palmgur Cooperative Federation to provide technological support in the processing and production of neera and its associated by-products such as jaggery and candy.

la Financial Corporation. In all Kerala has allocated Rs 30 crore for neera production this year. Under annual plan to the agriculture department the state government has been providing Rs 45 crore for coconut sector. With this the total allocation for the coconut sector is Rs 75 crore.

Farmers from the both states have been demanding the governments to allow tapping on neera as they have been struggling with pest attacks and drought in recent years. Though Karnataka had come up with a draft neera policy way back in 2007, the state had failed to implement the same over concerns of misuse. Welcoming announcements, coconut growers tapping neera said it would help them to earn additional income.

Neera and health benefits

Neera is a non-alcoholic and nutritious drink from the immature inflorescence of coconut tree. It is a vascular sap collected from immature unopened coconut inflorescence and is in fresh form. It is a sugar containing juice, a delicious health drink and a rich source of sugars, minerals and vitamins. It is sweet and oyster white in colour and translucent.

Neera extraction is generally done before sunrise. It is high in nutritional value, and susceptible to natural fermentation at ambient temperature within a few hours of extraction. Neera contains substantial amounts of iron, phosphorus and ascorbic acid. The high nutritive value of neera makes it an excellent health drink. It is wholesome, cool and good for improving the general health. It can be given as a supplement for iron and vitamin deficiency. Clinical studies indicate medical applications for asthma, tuberculosis, bronchial suffocation and piles. It is believed to facilitate clear urination and prevent jaundice.

Neera contains high amount of glutamic acid which is the amino acid used by the body to build proteins. It is high in inositol which is beneficial for the treatment of eye abnormalities, eczema etc. The most significant characteristic of the product is its low Glycemic Index (GI is 35), an indicator of the extent of sugar absorbed into the blood. It is an abundant source of minerals, 17 amino acids, Vitamin C, broad-spectrum B vitamins, and has a nearly neutral pH. The pH value of neera is the range of 3.9-4.7 and has specific gravity 1.058-1.077. Palm Jaggery, by product extracted from neera, possess high medicinal properties and is widely used for ayurvedic preparations. Palm sugar, with its low GI, is expected to cater to the needs of diabetic patients.

### Composition of Neera

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity (g/100ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total solids</td>
<td>15.2 – 19.7</td>
</tr>
<tr>
<td>Total sugars</td>
<td>14.4</td>
</tr>
<tr>
<td>Original reducing sugars</td>
<td>5.58</td>
</tr>
<tr>
<td>Total reducing sugars</td>
<td>9.85</td>
</tr>
<tr>
<td>Total ash</td>
<td>0.11 – 0.41</td>
</tr>
<tr>
<td>Citric acid</td>
<td>0.50</td>
</tr>
<tr>
<td>Alcohol in %</td>
<td>nil</td>
</tr>
<tr>
<td>Iron</td>
<td>0.15</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>7.59</td>
</tr>
<tr>
<td>Ascorbic acid*</td>
<td>16.30</td>
</tr>
<tr>
<td>Total protein</td>
<td>0.23 – 0.32</td>
</tr>
</tbody>
</table>

*Quantity (mg/100ml)

Source: Coconutboard.nic.in

Sharing his views Dr B Sesikeran, former Director, National Institute of Nutrition, said that neera was a safe drink but “I think it has a short shelf life since it has a potential to ferment.” Recalling his earlier days he said “I do remember that when I was in college in 1970’s neera was sold in Chennai in kiosks, I think through Gram Udyog. It was served chilled and very refreshing. It is supposed to be rich in anti-oxidants and a whole lot of potassium and other electrolytes. Those days carbonated beverages did exist till 1977 but were not affordable for most of us. This was the affordable option.”

Needs attention

Neera is highly susceptible to natural fermentation at ambient temperature within a few hours of extraction from the palm source. The tapped neera would be filtered for removing foreign particles, further chilled and stored at refrigerated conditions. Otherwise it turns into toddy with about 4% alcohol on account of fermentation. And the sale of toddy comes within the ambit of the excise laws. Hence several technologies have been developed by research institutes to process and preserve neera in its natural form to retain the vitamins, sugar, and other nutrients beneficial for health.

National Chemical Laboratory in Pune has come up with special filtration technique to enhance the shelf life of neera. Central Food Technological Research Institute in Mysore has developed technologies for the preservation and processing of neera. Other research institutes like, CDB Institute of Technology under Coconut Development Board, SCMS Institute of Science and Technology, Defence Food Research Laboratory, Kerala Agricultural University and Central Plantation Crops Research Institute too have developed technologies for processing and preservation of coconut neera. These processes ensure hygienic collection of sap using anti-ferment agents approved by Food Safety and Standards Authority of India (FSSAI). The fresh coconut sap collected in such a manner could be transported in ambient conditions to the factory site.

The coconut sap is processed into a non-alcoholic nutritious drink through centrifugal filtration and pasteurisation at the desired temperature and packed into consumer packs. Centrifuging process is followed to separate water, pollens and other residues from neera. Pasteurisation (the process of heating at higher temperatures and immediate cooling) removes bacterial presence and ensures longer shelf life. Bio
Coconut production in India

India stands first in productivity (8936 nuts/ha) and production (16943 million nuts) and third in area under coconut. The crop contributes more than Rs 8,000 crore annually to the Gross Domestic Product and earns valuable foreign exchange to the extent of Rs 2,000 crore by way of export of coconut products.

The contribution of the crop to the vegetable oil pool in the country is about 5% and the crop sustains 10 million people of the country through cultivation, processing, marketing and trade related activities. Under these circumstances, the crop holds much value in the Indian economy.

Kerala has the largest area under cultivation of coconut at 8.2 lakh HA and occupies the number one position in production among the Indian states. The state produces 5,941 million nuts per year (2011-12) and around 60% of this production occurs in the peak producing months from January to July. Coconut cultivation in the state is undertaken mainly in small and marginal scattered holdings. This hampers the prospects of processing and value addition in coconut.

Source: Coconut Development Board

Preservatives would be added. The packed neera can assure a shelf life of 3-4 months in room temperature and over a year in refrigerated conditions.

Besides using as a nutritional drink, neera can be used to develop other value added products which can be positioned in the market for targeted section like health conscious people, diabetic patients, kids and youngsters as a natural nutritive product to replace soft drinks, sugar and honey after value addition.

Neera and its value-added products have a higher competitive advantage over existing soft drinks/beverages. Not all carbohydrate foods are ranked equal, in fact they behave quite differently in our bodies due to individual metabolism. The glycemic index or GI describes this difference by ranking carbohydrates according to their effect on our blood glucose level. Low glycemic index foods produce only small fluctuations in our blood glucose and insulin level. So neera and its value added products can be safely used by diabetic patients.

Palmsgur (jaggery), palm sugar and neera syrup is produced by heating fresh neera and concentrating it. The use of concentrate syrup gives same sweet blend without causing spikes in the blood sugar while benefiting from it being nutritionally superior as compared with other natural syrups. Neera syrup is used as a health drink in connection with ayurveda and other systems of medicine. Coconut sap sugar can be the most suited alternative sweetener for the use by diabetic patients. Considering its competitive advantages there is a growing market trend for coconut neera and its value added products in beverages, food, bakery and confectionary industries.

People from the coastal belt of the country have been using neera and its byproducts. In West Bengal and Orissa most of the neera is converted into palm sugar and jam (jaggery). In Gujarat, Maharashtra, too coconut farmers produce palm sugar from neera. In Tamil Nadu the coconut growers have been producing palm sugar and palm candy besides selling neera as Padhaneer. In Andhra Pradesh, Kerala and Karnataka, a section of the population have been selling neera as they are not getting any support from the state governments.

Currently neera has an excellent market potential in local as well as other countries like Sri Lanka, Myanmar, Thailand, Africa, Indonesia, Philippines and other Pacific region, where neera is consumed as cool drink. Neera, if promoted and introduced across India, is bound to create a huge market potential as a health drink and as a base for manufacturing value added coconut products like concentrated syrup, sugar, honey etc. which has wide export potential in developed markets like USA and European regions. The Coconut Development Board needs to lobby with coconut growing states for amendments to the excise laws (state subject) to help growers take up promotion of neera and its value added products.

Narayan Kulkarni

SWOT analysis of Neera production and marketing

- **STRENGTHS**
  - Market hype
  - Support from Govt.

- **WEAKNESS**
  - Unavailability of successful Neera production and marketing models
  - Ambiguity in regulatory compliance needs
  - Lack of funding support for farmer federations

- **THREATS**
  - Food safety
  - Opposition from Toddy industry
  - Threat from soft drinks majors
  - Fund dry out

Source: Palakkad Coconut Producer Company Limited (PCPCL)