



## The health benefits of Neera; value addition potential

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Coconut sap or Neera is obtained by tapping or cutting the spathe of coconut. The main constituent of the coconut sap juice is sugar (14-18 per cent) the physical and chemical composition of freshly collected coconut blossom "sap" or "nectar" indicates that it is naturally rich in Potassium, Magnesium, Zinc and Iron and is a natural source of 12 of the essential vitamin B complex and vitamin C and has a neutral pH.

### Neera and Neera products, a healthy option in our diet

Neera is diabetic-friendly due to low Glycemic Load / Glycemic Index. Neera is rich in minerals and vitamins and it contains glucamic acid necessary for proteins synthesis. It aids in digestive health. Neera contains vitamins (Vit. A and Vit. C), which have antioxidant properties thereby preventing damage or death of cells.

Neera can be promoted as a health drink, instant energy provider, functional food and nutraceuticals. It is good for post-operative care due to the high content of electrolytes.

### Glycemic Index and Glycemic Load

The Glycemic Index (GI) is a measure of how quickly and how high a particular carbohydrate raises blood sugar level by releasing glucose into the blood stem. GI is a numerical ranking system (0 to 100) that compares a given food to pure glucose (GI – 100).

Low GI is measured at 55 or less medium GI at 56 to 69 and high GI at 70 or more. Low Glycemic food contains unrefined, complex carbohydrates that break down in to glucose more slowly and allow for a slower release of usable energy. Therefore it is controlling blood sugar levels in the body.

Glycemic Index should be taken into account when we decide the quality of carbohydrate in a food item. A GI value therefore tells us how rapidly a particular carbohydrate turns into sugar. It does not tell how much of that carbohydrate is in a serving of a particular food. Both the things are important to understand a food's effect on blood sugar.

Glycemic Load considers the quality and the quantity of carbohydrate content of the foods. Therefore, you can reduce the Glycemic Load of your diet by limiting foods that have both high Glycemic Index and high carbohydrate content. The Glycemic Load has been widely used to help diabetic patients manage their carbohydrate consumptions as well as those managing their body weight.

The Glycemic Index value along does not give accurate picture of the food. The Glycemic Load takes both quality and the quantity of carbohydrate content of the food into account. Glycemic Load is the Glycemic Index divided by 100 multiplied by its available carbohydrates content. The Glycemic Load of coconut palm sugar is 1.4, or 1 when rounded off.

Research carried out by the Food and Nutrition Research Institute (FNRI study in 2007) revealed that coconut sugar has naturally lower Glycemic Index rating (GI) of 35 compared to that of most available commercial sugar such as table sugar's GI index of 70, honey's GI of 55 and cane sugars GI of 68.

### **Benefit of taking low GI food**

By helping to maintain lower blood sugar insulin level, a low-GI diet may be useful in preventing and treating a variety of health problems. Here are some examples of how eating low on the Glycemic Index can help promote excellent health:

**Diabetes** – Substituting low - GI carbohydrates (like thick – cut oats, pasta and legumes) for high- GI carbohydrates (like processed cereals, white bread, and potatoes) can help lower blood glucose levels in people with diabetes. This is why the GI has been an integral part of medical nutrition therapy for diabetes in Australia, New Zealand, Canada and Europe for many years.

Harvard University researchers who tracked the eating habits of over 100,000 men and women found that people whose diets are low in fibre and high in refined and high – GI carbohydrates are more than twice as likely to develop type 2 diabetes, as are people who eat diet with a low Glycemic Load.

**Cancer** - Insulin is a cellular growth factor; many studies have shown an association between high insulin levels and a variety of cancers including breast, colorectal, prostate, and pancreas. Other studies have shown links between diets high in sugar, refined carbohydrates, Glycemic Load and cancer. This suggests that lifestyle changes like maintaining a healthy body weight, exercising and eating a healthy low – GI diet may help protect against cancer at least partly by lowering insulin levels.

**Cardiovascular Disease** - As with type 2 diabetes, researchers have found that a diet rich in refined and high GI carbohydrates may substantially raise the risk for heart disease. These foods increase blood insulin levels which in turn contribute to high blood pressure, higher levels of blood fats (triglycerides), lower levels of HDL (good) cholesterol and an increased tendency for dangerous clots to form and linger in the blood.

**Hypoglycemia** - People who have meal related reactive hypoglycemia secrete too much insulin after eating. This causes the cells to remove so much sugar from the blood that they feel weak, irritable, giddy and hungry.

### **Potential value-added products from Neera**

Diverse products can be prepared from coconut sap. It is possible to promote on-farm utilisation of selected products, the processing of which does not require the application of complex technologies.

A high level of hygiene and professional management is necessary to meet the food standard of the confectionery and bakery industry.

Neera tapping requires adherence to strict procedure right from the collection of the first drop.

This is because the sap on extruding comes into contact with air and the process of fermentation is initiated.

Neera tapping is done thrice a day. Sap is collected thrice daily using anti-ferment solution (AFS). Chilled condition is required for the storage of Neera. So, Neera is transported to the processing sites in chillers or ice boxes. On an average, a palm yields about 1.5 to two litre of Neera.

To produce good quality Neera, it is necessary that all containers and vessels used should be clean at all times.

## Processing

As Neera is highly perishable due to natural micro flora, it should be processed immediately after harvesting, conception of raw Neera without processing may cause various foodborne illnesses. Raw Neera collected using anti-ferment solution can be processed in different ways based on the quality of Neera. Apart from pH and brix, organoleptic properties also determined the quality of raw Neera.

## Neera drink

Neera can be hygienically processed to a natural health drink. Quality of raw Neera determines the quality of drink processed. So, raw Neera of pH above 5 is always preferred for Neera drink. Raw Neera is centrifuged, pasteurised and packed in aseptic condition to produce Neera drink. Neera drink can also be produced in different flavours (green apple, litchi, green coconut, lemon and so on) for consumer acceptance. Neera food becomes a nutritious drink offering a healthy alternative to aerated beverages and soft drinks available in the market.

## Primary products of Neera

Neera Sugar: It is crystallised form of sugar prepared from Neera concentrate. Coconut sap sugar is very delicious and has more nutrients. Coconut sugar has a low Glycemic Index and low Glycemic Load. It is particularly beneficial for diabetes. And the other Neera products are Neera jaggery, Neera semisolid jaggery, Neera honey, sweets and confectioneries, Neera squash, Neera ice cream, fruit spread are other Neera products.

## Health Benefits of Neera

Nutrient	Health benefits
Carbohydrate (g/100g)	Source of energy in our body
Proteins (g/100g)	Build, maintain and repair of the body
Vitamin:	
Vitamin C (Ascorbic Acid mg/ 100ml)	Antioxidant – prevent cancer, increase absorption of iron, healing effect
Vitamin B1 (Thiamin) mg/ dl	Release of energy from fuel molecule
Vitamin B8 (Inositol) mg/dl	Helps to reduce high cholesterol, good for heart, formation of healthy cells in the body
Amino Acids	
Glutamic acid g/ 100g	Major role in Synthesize of protein , healing of illness,
Minerals, Macro nutrients mg/ 100gm	
Potassium	Reduce hypertension and blood sugar, controls cholesterol level and weight
Magnesium	Essential for metabolism, nerves and stimulates and brain ( memory)
Nitrogen	Help treat cardiovascular disease
Phosphorous	Enhance Bone and cell Growth, and Kidney function
Sodium	Key role in function of nerves and muscles
Chlorine	Maintain body fluid volume, acid base balance
Minerals, Micro nutrients mg/ 100gm	
Zinc	Necessary for mental development ( intelligence)
Iron	Vital for quality of blood and mental development, immune system
Copper	Helps to release energy, helps melanin production in the skin, production of red blood cell

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