



## Nutritional and Medicinal Property of Jaggery: An Overview

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### Abstract

*The oldest sweetener jaggery made from sugarcane (*Saccharum officinalis*) juice. It is a yellowish concentrated form of sugarcane juice which contains nutritional and medicinal properties. The good quality jaggery is golden yellowish in color, texture is hard, sweet taste with low moisture content. About 70% jaggery is made in India by various processes, in month of November to April which is a suitable climate for preparation of jaggery. Today the jaggery is available in three forms solid jaggery, liquid jaggery and granular jaggery of which solid jaggery is broadly used. The liquid jaggery has commercial value and widely used in West Bengal and Maharashtra while the granular jaggery is also most popular in rural diet. Sugarcane jaggery contains highly nutritive value with medicinal values. The jaggery contains vitamins, proteins and minerals which are essential constituents of body. Today the ayurvedic industry prepares therapeutic formulation with jaggery for the treatment of various diseases and disorders.*

**Keywords:** Jaggery, Sugar cane, Antioxidant, Cough, Arthritis.

### Introduction

Sugarcane jaggery is a processed dried form of sugarcane juice made by the concentration of sugarcane juice. The sugarcane juice is obtained from dried stem of sugarcane (*Saccharum officinalis*). The good quality jaggery is golden yellowish in color, sweet in nature, hard texture and crystalline structure. India is highly productive country among the world which produced about 70% of the total jaggery. Suitable climate for preparation of jaggery from sugarcane juice is from November to April<sup>[1]</sup>. The jaggery is available in three forms- solid jaggery, liquid jaggery and granular jaggery. Among the total

sugarcane jaggery, solid jaggery is about 80% and remaining 20% sugarcane jaggery is available in liquid form. In rural areas solid jaggery and liquid jaggery are most popular in diet<sup>[2]</sup>. The sugarcane jaggery has much nutritional and medicinal properties. Jaggery contains protein, vitamins and minerals which are the main essential constituents of the body. Apart from the nutritional value it has some medicinal importance and used for the treatment of various diseases with addition of other herbal drugs. In ayurveda various acharyas reported medicinal products like gud, arishta and asava for treatment of various diseases<sup>[3]</sup>.

### Chemical Composition of Sugarcane Jaggery

The chemical composition of sugarcane jaggery is very from golden brown to dark brown in color. The jaggery contains sucrose about 50% and inverted sugar 20%, 20 % moisture, proteins, vitamins and minerals<sup>[4]</sup>. Sugarcane jaggery contains all types of vitamins (viz., vitamin A, B1, B2, B5, B6, C, D and E). sugarcane jaggery is highly rich in important minerals (calcium, potassium, iron, chloride, phosphorus, sodium, manganese, zinc, copper, and magnesium)<sup>[5]</sup>.

### Medicinal Benefits of Sugarcane Jaggery

Daily consumption of sugarcane jaggery produces medicinal benefits in human life and it is also called as medicinal sugar. Sugarcane jaggery contains highly rich in polyphenols, minerals, proteins and vitamins<sup>[6]</sup>. In ayurveda it is highly recommended for improves digestion, cleaning of liver, blood purification, relieves constipation, anti-toxic, antianxiety, treatment of bronchial and lungs infections, energy booster, premenstrual syndrome (PMS) and antioxidant<sup>[7]</sup>.

### Ayurvedic Preparations with Jaggery

Various formulations are available now with sugarcane jaggery to improve the therapeutic value of jaggery. Some combinations of jaggery with other additives are addition of flavoring agents like cardamom, lemon, black pepper, dry ginger etc. Addition of nutritional ingredients like proteins, vitamins, amino acids and phytochemicals. Addition of texture and taste enhancers like pulses, nuts, spices and cereals improves the health benefits of jaggery [8]. Preparation of herbal sugar syrup, alcoholic beverages, jaggery toffees, jaggery cakes are also important for human health. Some common medicinal and nutritional and health benefit preparations are reported and listed below-

a. Jaggery with triphala: Used to removes fatigue, improve eyesight, voice and speech improvement, skeletal muscle disorder, hair grow and enhanced body strength<sup>[9]</sup>.

- b. Jaggery with ghee: Cure for all types of diseases<sup>[10]</sup>.
- c. Jaggery with curd: Manage skeletal muscles disorders<sup>[11]</sup>.
- d. Jaggery with honey: Manages all types of diseases<sup>[12]</sup>.
- e. Jaggery with ghee, salt, dried ginger, black pepper or pippali: Sarva-rogvinashak (beneficial for all types of diseases).
- f. Jaggery with Ananta, Shringvera and Guggul: improves indigestion and flatulence.
- g. Jaggery with gum of lemon and ghee: Improve digestion, reduced blood pressure, inhibits tumor growth, reduced atherosclerosis, reduced kidney stone, anti-inflammatory etc.
- h. Jaggery with Barley, Ashwagandha, Musli, Sarla and sesame: Anti-aging and strengthen the body.
- i. Jaggery with Ashwagandha, Naagbala and Urd: Anti-aging and strengthen the body.
- j. Jaggery with Banana roots and ghee: Kills worms of stomach.
- k. Jaggery with Pumpkin juice, sugar and milk: Used in management of snake bite poisoning.
- l. Jaggery with Khajur, Haritaki, oil and Bhilva: Used to cure leprosy .
- m. Jaggery with dried ginger, rock salt, black salt and vidang salt: Cure hiccups.
- n. Jaggery with Giloy: Used as antioxidant, antipyretic, antiseptic, anti-inflammatory and antiviral.
- o. Jaggery with Indian Gooseberry (amla): Used for treatment of cough, flu, act as coolant, laxative, antibacterial and treat leucorrhea<sup>[13]</sup>.
- p. Jaggery with Himalayan ginseng: Improves cardiovascular and vascular system, anti-inflammatory, anti-atherosclerosis and regulate immunity<sup>[14]</sup>.
- q. Jaggery with dry ginger, black pepper, holey basil, licorice, long pepper, black cardamom, clove and cinnamon: Used as anti-inflammatory, antioxidant, antibacterial, and antiseptic<sup>[15]</sup>.

- r. Jaggery with Mentha oil: Antibacterial, natural coolant, improve digestion<sup>[16]</sup>.
- s. Jaggery with dry Ginger, fennel, cardamom and star anise: Act as anti-inflammatory, anti-bacterial; improve digestion, antiviral and anti-digestive<sup>[17]</sup>.
- t. Jaggery with essential oil of cardamom: Antioxidant, blood purifier, anti-inflammatory, improves digestion, increase appetite, detoxifier and diuretics<sup>[18]</sup>.
- u. Jaggery with iron rich diet: Increases hemoglobin count<sup>[19]</sup>.

### Health Benefits of Sugarcane Jaggery

Ancient literatures reported the medicinal properties of sugarcane jaggery. The biological activity of jaggery is mainly due to presence of micronutrients and phytochemicals like polyphenols. The health benefits of jaggery on different health issues like diuretics, mental refreshment, improve throat infections, increase sperm count etc. and some other health benefits are listed below in table 1.

**Table 1** Health benefits of sugar cane jaggery with herbal drugs.

HEALTH ISSUES	BENEFITS
<b>Cough</b>	Jaggery helps to clean the lungs and relief in cough and cold symptoms when added with dry ginger, black pepper, vasa and Yashtimadhu <sup>[20]</sup> .
<b>Asthma</b>	Jaggery makes balance between vata and kapha and minimizes the symptoms of asthma <sup>[21]</sup> .
<b>Obesity</b>	Jaggery reduces obesity <sup>[22]</sup> .
<b>Weight loss</b>	Jaggery contains vitamins and minerals which are helpful in reducing body weight <sup>[23]</sup> .
<b>Immunity booster</b>	Presence of selenium and zinc jaggery improves immunity hemoglobin level <sup>[24]</sup> .
<b>Detoxification</b>	Antioxidant property of jaggery causes detoxification <sup>[25]</sup> .
<b>Acidity</b>	Presence of potassium reduces the acidity in the stomach and improves digestion <sup>[26]</sup> .
<b>Arthritis</b>	Jaggery balance vata dosh and reduces the inflammation and pain in joints <sup>[27]</sup> .
<b>Anemia</b>	Jaggery contains iron which improves the hemoglobin counts <sup>[28]</sup> .
<b>Piles</b>	The oily property of jaggery reduces the constipation, improve digestion and prevent the formation of piles <sup>[29]</sup> .
<b>Blood cholesterol</b>	Improper digestion of lipids causes rise in blood cholesterol level which are the risk factor for cardiovascular diseases. Jaggery aids in digestion improvement and lower the cholesterol level <sup>[30]</sup> .
<b>Bloating</b>	Low level of sodium and high level of potassium in jaggery reduces the bloating <sup>[31]</sup> .
<b>Loss of appetite</b>	Jaggery enhances the digestive fire and improves appetite and also used as digestive stimulants and appetizer.
<b>Blood purification</b>	Jaggery is a natural blood purifier and detoxifies the blood.
<b>Nervous system related issues</b>	Due to antioxidant property jaggery improves the nerve conduction and stimulates the nervous system.
<b>Blood pressure</b>	Daily consumption of jaggery regulates the blood pressure <sup>[32]</sup> .

### Conclusion

Jaggery is a processed dried form of sugarcane juice which contains minerals, vitamins, iron and sugar. Jaggery is nutritionally beneficial and

contains nutritive and nutraceutical elements which are essential for health benefits. The value added jaggery formulations enhances the nutritional and medicinal properties of the jaggery.

The formulated jaggery is having much beneficial therapeutic value for the treatment of various diseases. The addition of several herbal elements to jaggery amplifies its medicinal properties and can be recommended for daily use.

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