

# Jamun Wine

Dipraj Sanjeevan Gaikwad

Modern College of Agricultural Biotechnology, Pune Affiliated by Mahatma Phule krishi Vidyapeeth, Rahuri, A.Nagar, Maharashtra, India

**Abstract:** A red wine from tropical jamun fruit is having medicinal properties. (anti-diabetic and curing cancer.) properties was prepared by fermentation using wine yeast (*Saccharomyces cerevisiae*) The wine was red in colour and acidic in taste. Titratable acidity (0.0036%) and low alcohol (10.84%) concentration. Through a sensory valuation rated the jamun wine quite accepted as an alcoholic beverage, the difference between commercial grape wine and jamun wine particularly in taste, flavour due to high tannin content in the jamun wine.

**Keywords:** Antidiabetic, Anticancer, Antioxidant, Jamun, red wine, *Saccharomyces cerevisiae*

## 1. Introduction

Jamun (*Syzygiumcumini*) is a never green tropical tree in the flowering plant family Myrtaceae, native to India and Indonesia (Choudhury, *et.al.*, 2007) Bark, leaves and seeds are used since ancient times to cure various disease. It is called "Fruits of God". It is having numerous medicinal properties. It having anthocyanines (colour compound), glucoside, ellagic acid. It is having phytochemicals that minimize the risk of liver disease and cancer. Jamun is used to treat diabetics by several traditional practitioners. It having a low glycaemic index making it is good option for diabetics.

Another study showed that jamun seeds could lower blood sugar level by 30%. During extraction of fruit for most preparation, phenol compounds are released that may interfere with taste & colour of wine; this can be prevented by addition of ascorbic acid. KMS is used as a preservative, used to kill food spoiling microorganisms like Lactobacillus, Acetobacter, Clostridium. Jamun tree starts flowering in March–April. This is followed by fruiting (a berry) which appears in May–June. The fruits and its juice and seed contain a biochemical called jamoline which believed to check the pathological conversion of starch into sugar. The use of this fruit in this manner in every season will effect radical cure and save the user from bleeding piles life long (Wealth of India, 1954, Joshi, *et.al.* 2001). Ancient Rishies and Munies did enough research works on blackberries. According to them, the fruit is small, rough, sour, sweet, acidic, coolant, destroys cough, pitt (bile) and vat (wind), blood circulator, highly helping indigestion and antiacidic, useful in skin diseases, activator of liver, thirst extinguisher, anti -diarrhoeic, destructs bad bacteria in stomach and effective in respiratory system. (Bhowmik, D., *et. al.*2013) Jamun has also anti cancer and anti viral properties. It's fruits extract inhibit growth and induces a poptosis of breast cancer. Jamun juice is carminative, having mild a stringent effect, stomach and diuretic, give a soothing effect in digestive system. (Baslingappa Swami, S., *et.al.* 2012) The powder of Jamun bark is applied extremely to effectively control the bleeding. The fruits are effectively in blood purifying and fruits pulps with sesame oil are effective in higher fever.

## 2. Material

The fully ripened and undamaged jamun fruits were purchased from local market on July 2015. (Day temperature,  $\pm 32^{\circ}\text{C}$ )

**Wine Yeast:** The wine yeast, *Saccharomyces cerevisiae*

### Fermentation Process

760gm jamun fruits was cleaned by washing in tap water . After which lone seed was extracted manually. The pulp was extracted by using mixture-cum-grinder, Approximately 520ml juice was extracted from 760gm fruits. The juice (must) filtered by sieve. Then TSS (Total soluble sugars) checked by Hand refractometer, then cane sugar was added to adjust  $22^{\circ}$  Brix. Starter culture *Saccharomyces cerevisiae* added, and fermentation was carried out in fermenter at room temperature. Fermentation was carried out for 12days. Racking was carried out when total soluble sugars (TSS) reaches to  $6-7^{\circ}$  Brix. One more racking at 7day interval to remove any sediment deposited in the wine. The wine after racking clarified by whatman filter paper.

- 1) Weigh the clean and fresh Jamun before crushing.
- 2) Cut it and make juice by using food processor.
- 3) Weigh the waste seeds and measure the jamun juice in measuring cylinder.
- 4) Measure the Total soluble solid (T. S. S)<sup>0</sup> Brix by using hand refractometer .
- 5) Check acidity and pH and Adjust the Brix upto  $22^{\circ}$ Brix.
- 6) Then add KMS at the rate of 100ppm.
- 7) Measure the Yeast at the rate of 0.1% of juice.
- 8) Take some juice for activation of yeast, make the juice warm and add 0.1% yeast and some amount of sugar and keep it for 15min aside.
- 9) Add the above inoculums to the juice and keep it for primary fermentation 7days.
- 10) Tightly seal the can by using parafilm to generate anaerobic environment .
- 11) Perform the chemical analysis at 7 days interval till the T. S.S. reaches to  $5^{\circ}$  Brix.
- 12) Filter the juice (125mm filter) and keep it for secondary fermentation.
- 13) Keep the wine for ageing and then wine is ready to taste (Choudhury etal 2007).

### 3. Observations

1	Total Weight( gm)	762.324
2	Waste weight( gm)	178.591
3	% Juice weight Recovery	68.99
4	% Waste	23.42

### Chemical Analysis during Fermentation

Duration (Days)	T.S.S. ( <sup>o</sup> Brix)	Acidity		Alcohol
		Acetic acid	Tartaric acid	
Before fermentation	22	0.027	0.033	
After 7 days	12	0.036	0.033	6.6
12 days	10	0.030	0.033	7.92
16 days	7	0.050	0.063	9.99
23 days	6.6	0.0036	0.075	10.84

### 4. Sensory Evaluation Assay

Sensory attributes (such as taste, aroma, flavor, colour/appearance) and after taste were evaluated using a 5 point Hedonic scale (Where 3=dislike extremely, 7=like extremely) by 26 panelists (gender 13men, 13women; age group of 20-38) selected from undergraduate students, teachers staff. Samples were served in clean transparent glasses. Questionnaires and water for mouth rinsing between tasting provided. Panelists were asked to read the questionnaires and meaning of each attributes (taste, colour/appearance, flavour, aroma, and after taste) was explained to the panellists to avoid any misinterpretation (Choudhury, *et.al.*, 2007).

### 5. Result and Discussion

Tropical countries includes variety of fruits includes mango (Shrisamthhakarn, *et. al.*, 2001), apple etc.. Jamun is fleshy fruit contain seed which can easily removed. Jamun is rich source of an thocyan in concentration (Choudhury, *et.al.*, 2007 ) Must of jamun fruit and juice contain high contain acidity, T.S.S. decreases as the fermentation proceeds itturnsupto5-7 °Brix from 22°Brix Most of studies it conclude that jamun wine is Red sparkling beverages and alcohol levelis7-14%.Ithavinghigh tannin results into increase astringency.

### References

- [1] Choudhury, P., Ray, RC.,(2007), Fermentation of jamun fruits to form red wine ASEAN food journal 14( 1):15-23(2007): 18.
- [2] Baslingappaswami, S., Nayan,singh., J.Thakor., Patil, M.,Haldankar, P., (2012), Jamun (Syzygiumcumini ): Are view of its food and medicinal uses, Food and Nutrition sciences, 1100-1117: 14.
- [3] Bhowmik, D., Gopinath, H., Pragati Kumar, B., S.Duraivel., Aravind. G., Sampath Kumar. K P., Traditional and Medicinal Uses of Indian BlackBerry, Journal of Pharmacognosy and Phytochemistry, IC Journal No: 8192, Volume 1 Issue 5,13.