

# Jackal Jujube into A Rts Beverage

Jayasree.V<sup>1</sup>, Nithya Sneha. S. K<sup>2</sup>, Dr.Simmi Jain<sup>3</sup>

<sup>1,2,3</sup>Department of Food Science

## ABSTRACT:

Jackle jujube is one of the tribal fruit seen all over india. A variety of wild plants previously used by rural and tribal communities. There are many findings indicating the importance of wild fruit species as a crucial source of nutrition for rural impoverished people. Certain wild edible plants and fruits are significant components of biodiversity, and their exploitation has developed into a crucial livelihood strategy and backup plan for rural communities during times of natural hardship. These findings validate the traditional application of jackal jujube (*Ziziphus oenoplia*) to treat a range of ailments. These research talk about making a RTS (ready-to-serve) from jackal jujube fruit as one of the value added product.

**KEYWORDS:** jackal jujube, tribal, wild fruit, RTS.

**INTRODUCTION:** *Ziziphus oenoplia* Mill, a member of the Rhamnaceae family, is also referred to as Jackal Jujube in English. Common name: Jackal Jujube, Small-Fruited Jujube, Wild Jujube. Tamil name : Suraimullu, Surai ilantai. It is an errant shrub that can be found in temperate India, Pakistan, Sri Lanka, Malaysia, and Tropical Asia. The plant's edible fruits have a range of medicinal uses in Ayurveda, including the treatment of ulcers, stomach aches, digestive issues, wound healing, antiseptic, hepatoprotective, obesity, asthma, and diuretic properties. The flowers are green in colour, in subsessile axillary cymes. The fruits contain a single seed having globose drupe, black and shiny when ripe. It is one of the folk herbal medicines that has some major pharmacological properties as a blood purifier, abdominal pain killer, febrifuge etc. The jackal jujube RTS beverage was prepared using dates sugar, water, lemon, ginger and jackal jujube. Ginger has the property to inhibit yeast production and thus it prevents the fermentation of jackle jujube RTS. Citric acid i.e lemon juice extract is used as a natural preservative. Date sugar is a type of sugar found most commonly in natural food stores since it is less processed than more conventional sugars. They have low glycemic value than other refined sugars and hence it is a perfect alternative for sugars in RTS. Jackle jujube fruit juice based RTS beverages have the distinct advantage of higher nutritional value over synthetic aerated water. The fruit was taken to commercialize the product in market sectors.

## SCIENTIFIC CLASSIFICATION:

- Kingdom - Plantae
- Phylum - Tracheophyta
- Class - Magnoliopsida
- Order - Rosales
- Family - Rhamnaceae
- Genus - *Ziziphus*
- Species - *Ziziphus oenoplia*

**MATERIALS AND METHODS:****PROCESSING OF RTS**

The jackal jujube RTS beverage was prepared using dates sugar, water, lemon, ginger and jackal jujube. Fresh jackal jujube fruit is washed, cleaned and then cooked with 500 ml of water till soft consistency. Filter the pulp to extract the juice. To the juice add 35g sugar and 15ml of lemon juice and allow it to boil for 5 minutes then finally at the end add ginger extract 5ml. Filter the juice to get a clear and homogenized juice. Fill it in a sterilized containers. Cool and store it in a refrigerator at 3°C -5°C celcius.

Fresh Jackal jujube fruit



Washing



Boiling with 500ml of water



Filtration



Extraction of juice



Adding sugar syrup



Homogenizing juice & syrup



Preservatives added (lemon 15ml+ginger extract 5 ml)



Boil for 10 minutes



Filled in bottles



Storage

(under ambient temperature)

**TEST DONE:****1) MICROBIAL TEST:**

**Requirements:-** Inoculation needle, Agar plates, sample -RTS juice, acetone, cotton, Laminar air flow. In order to determine microbial growth in RTS, a total plate counting method is adopted. Place a loopful of juice sample on the agar surface and spread them rapidly for several times across the agar surface. Incubating the plate in order to observe any microbial invasion. The incubation period given were 24 hours, 72 hours, 120 hours, 10 days and 14 days. count the colonies at each time periods.



NO.OF DAYS	MICROBIAL COUNT
1 day	Nil
3 days	Nil
5 days	Nil
10 days	15
14 days	27

**2) TOTAL SOLUBLE SOLIDS TEST:**

**Requirements:-**Hydrometer , measuring cylinder, thermometer, Refractometer. Calculate the TSS value using Refractometer and hydrometer . A glass hydrometer with suitable scale is floated in a sample of the test liquid and is held in a measuring cylinder. Clean the Refractometer instrument with distilled water.calibrate with a drop of distilled water.Adjust the reading to 0 brix.Place a drop of juice on Refractometer prism.lower the cover plate and read.In both Refractometer and Hydrometer the TSS value is 10 brix.



**3) VITAMIN-C BY IODINE TITRATION:**

Vitamin-c standard solution was prepared by dissolving 0.250g vitamin-c in 100ml distilled water. Dilute to 250 ml with distilled water in a volumetric flask. For Iodine solution dissolve 0.25g of potassium iodate and potassium iodide in 200 ml of distilled water. add 30ml of 3M Sulfuric acid. Pour this solution into 500 ml graduated cylinder and dilute it to a final volume of 500ml with distilled water. mix and transfer the solution to 600ml beaker. Then 1% starch Indicator solution is prepared by adding 0.50g soluble starch to 50 near boiling distilled water. mix well and allow to cool before use. After making all these reagent preparation . 25 ml vitamin-c standard solution is titrated against iodine solution using starch as indicator . similar titration with juice sample. Repeat until two values are concurrent. The vitamin c content for 100ml undiluted juice has (44.4 mg/100ml).

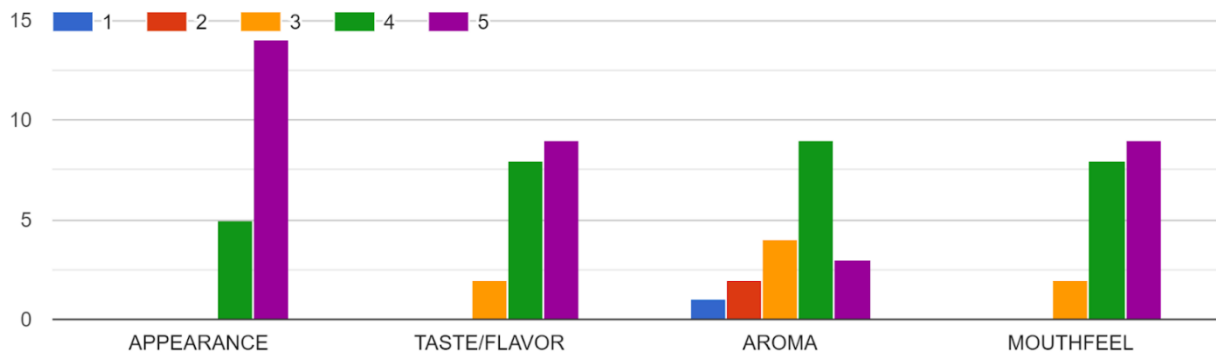
**OBSERVATION:**

STANDARD/SAMPLE	TITRANT VOLUME	CONCURRENT VALUE
Standard vitamin-c	15	
Standard vitamin-c	18	
Standard vitamin-c	18	18 ml
Sample	0.8	
Sample	0.9	
sample	0.8	0.8 ml

**4) SENSORY ANALYSIS:**

Sensory evaluation of RTS beverage was done by a panel of 20 members using a 5-point hedonic scale with scores from ‘Like extremely’ to ‘Dislike extremely’.

SENSORY ANALYSIS



## RESULT AND DISCUSSION:

The physico-chemical properties of the raw materials utilised to make jackal jujube -based RTS formulations were examined. Highest Vitamin C content was observed in jackle jujube RTS (44.4 mg/100 ml). The total soluble solids expressed as °brix was recorded as 10. Result if sensory evaluation of prepared RTS present in table. The result early indicates the Result of Sensory evaluation of prepared RTS. The result clearly indicates that fig.1 scored significantly higher scores with respect to mouthfeel, taste/flavor and overall appearance. One of the limitations of control i.e. jackle jujube RTS was its aroma. The addition of ginger and lemon juice had a positive impact on the sensory attributes of RTS. The appropriate storage condition is at 3°C-5°C in the refrigeration temperature. The ginger and citrus fruit has a beneficial effect on the jackle jujube RTS beverage. Therefore the formulation of jackle jujube RTS beverage is a good value added product. Without any significant change in the quality characteristics.

## REFERENCES:

1. Goyal, P.K., Jeyabalan, G and Singh, Y. (2021). In-vitro free radical scavenging and hypoglycemic evaluation of fruit extract and solvent fractions of *Zizyphus oenoplia* mill (Rhamnaceae). *International Journal of Pharmacognosy*. 8(5): 216-223.
2. Alam, M., Chakrabarty, N., Majumder, M and Khan, M.F. (2020). Assessment of antioxidant, anthelmintic, and cytotoxic activities of *Zizyphus oenoplia* (L.) leaves and identification of potential lead compounds through molecular docking analysis. *Pharmacology online*. 55-67.
3. Shukla, A., Garg, A., Mourya, P and Jain, C.P. (2016). *Zizyphus oenoplia* Mill: A review on Pharmacological aspects. *Advance Pharmaceutical Journal*. 1(1): 8-12.
4. Mahapatra, A.K and Panda, P.C. (2012). Wild edible fruit diversity and its significance in the livelihood of indigenous tribals: Evidence from eastern India. *Food Science*.
5. Aberoumand, A. and S.S. Deokule, 2009. Studies on Nutritional Values of Some Wild Edible Plants from Iran and India. *Pak. J. Nutrition*, 8(1): 26-31.
6. Guo J B, Fan Y, Zhang W J, Du L M, Chang Y X. Extraction of gingerols and shogaols from ginger (*Zingiber officinale* Roscoe) through microwave technique using ionic liquids[J]. *J Food Compos Anal*, 2017, (62): 35-42.
7. Mahapatra, A. K., Mishra, S., Basak, U. C., & Panda, P. C. (2012). Nutrient analysis of some selected wild edible fruits of deciduous forests of India: an explorative study towards non conventional bio-nutrition. *Advance Journal of Food Science and Technology*, 4(1), 15-21.
8. Shyamala, R., & Manikandan, R. (2019). Determination of bioactive compounds in *Zizyphus oenoplia* leaves extract using gas chromatography and mass spectroscopic technique. *Journal of Pharmacognosy and Phytochemistry*, 8(5), 157-160.
9. Li, Z., Ying, C., He, C., & Wei, M. (2020, September). Effects of Gingerols on Yeast Growth and Metabolism of the Fermentation Process. In *Journal of Physics: Conference Series* (Vol. 1637, No. 1, p. 012107). IOP Publishing.