



## Studies on formulation and standardization of dates pickle

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### Abstract

In study preparation of Dates Pickle was successfully done and evaluation, formulation, standardization, proximate analysis and storage study. In that used ingredient like Dates, Jaggery and Spices. Dates and jaggery was rich in carbohydrates and iron. For the preparation of Dates pickle three trials were taken among the three trials, T3 get highest score on the basis of sensory evaluation. The Dates were soaked for 24 hrs and heated with jaggery and Tamarind pulp. Spices powder was added for flavoring purpose The pickle sample were analyzed for different parameter vis, pH (5.10), Acidity (1.3%), Carbohydrate (83.85%), Protein (8.15%), Fat (6.6%), Moisture (52.2%), Ash (1.4%) and Energy value (427.6%). The Dates pickle was rich in carbohydrate which gives best energy source. Dates pickle stored in Glass bottles at room temperature for the period of six months. Dates pickle can be satisfy the consumer acceptance and quality.

**Keywords:** Dates, Formulation, soaking, sensory evaluation, proximate analysis, Glass bottles

### Introduction

The preservation of food in common salt or vinegar is known as is known as pickling. It is one of the most ancient method of preserving fruit and vegetable fruits and vegetables. Pickles are good appetizers and add to the palatability of a meal. They simulate the flow of gastric juice and thus help in a digestion. Several kinds of pickles are sold in the Indian market. Mango pickle ranks first followed by cauliflower, onion, turnip and lime pickles these are commonly made in homes as well as commercially manufactured and exported. Fruits are generally preserved in sweeten and spiced vinegar, while vegetable are preserved in salt. (Fruits and Vegetable Preservation, Srivastava and Kumar, 2002) [5].

*Date (Phoenix dactylifera L.)* is commonly known as Date palm and belongs to family *Arecaceae*. It is a primeval plant and has been cultivated for its edible fruits in the desert oasis of the Arab world for centuries. Date palm are monocotyledon and can grow up to altitude of 1500 m in well drained soils. Currently they are cultivated in the Middle East, North Africa, parts of Central and South America, Southern Europe, India and Pakistan. Some of the best varieties of dates are Medjool, Khalas, Deglet Noor. As per recent information, USA today earns highest export price for date in the world. Information also suggest that the world production of date has increase from about 4.60 million tons in 1994 to 6.9 million tons in 2004. Dates are compose of Moisture (15.2g/100g), Protein (2.14g/100g), Fat (0.38g/100g), Ash (1.67g/100g), Carbohydrate (80.6g/100g), Total sugar (64.1g/100g), Fructose (29.4g/100g), Glucose (30.4g/100g), Energy (314 kcl/100g). Dates are also contain vitamins like B1 (Thiamine), B2 (Riboflavin), B3 (Niacin), B5 (Pantothenic acid), B9 (Folic acid). The Niacin content is very high and it varies between 1.27 and 1.61 mg/100g. A high percentage of sugar in Dates fruits provide a good source of rapid energy. Recent studies have indicated that date fruit contains significant amount of flavonoid glycosides including quercetin, apigenin. *P-*

*coumarin* acid, ferulic acid and sinapic acid. Flavonoid glycosides are group of chemical compounds found in many commonly eaten foods. They have beneficial effect on human health include antioxidants, strengthening of the immune system, protection against cancer and cell damage and a reduction in capillary fragility. Overall the nutritional profile of dates compares very well with other popular dried fruits. (Ahmed et.al. 2014) [1].

Jaggery is the far complex than sugar, as it is made up of longer chains of sucrose. Hence it is digested slower than sugar and releases energy slowly and not spontaneously. This provides energy for longer period of time and is not harmful for body. Jaggery is rich in important minerals like calcium 40-100mg, magnesium 70-90mg, potassium 1056mg, phosphorus 20-90mg, sodium 19-30mg and chloride 5.3mg per 100gm of jaggery. Vitamins like vit. A- 3.8mg, vit B1-0.01mg, vit B2- 0.06mg, vit B5- 0.01mg, vit B6- 0.01mg per 100gm. (Nath *et al.*, (2015) [3].

Generally pickles are prepared form raw mango. Pickles are a traditional product, with increasing awareness of the food value and dietary role of various food constituents. Pickle is an edible product preserved in common salt, vinegar and spices. But we used a Dates for formulation of Dates pickle because of its nutritional purpose. And also we used jaggery because of its importance and nutritional value. We formulated and standardized the dates pickle using different spices in powder form and tamarind pulp. Spices such as cumin, cinnamon, anise, red chilli and fenugreek.

### Materials and Methods

#### Ingredients, chemical and Equipments

Raw materials required during present investigation were procured from local market of Saralgaon such as Dates, Jaggery, Spices, oil, Salt etc. Most of the chemicals and equipments used in this investigation were of analytical grade which are obtained from College of Food Technology Saralgaon, Thane.

**Physical and chemical analysis**

Chemical Analysis such as moisture is determined by using hot air oven, fat is determined by Soxhlet apparatus and protein is determined by using Kjeldahls method. Acidity is determined by using titration method and pH is measured by digital pH meter. All quality parameters were determined by AOAC (2000).

**Organoleptic Evaluation**

Prepared product were evaluated for sensory characteristics in terms of appearance, color, flavor, aftertaste, texture and overall acceptability by 10 semi-trained panel members comprised of academic staff members using 9- point Hedonic scale. Judgments were made through rating the product on a 9 point Hedonic scale with corresponding descriptive terms ranging from 9 'like extremely' to 1 'dislike extremely'. The obtained results were recorded in sensory score card.

**Statistical Analysis**

The analysis of variance of the data obtained was done by using completely randomized design (CRD) for different treatments as per the method given by Panse and Sukhatme (1967). The analysis of variance revealed at significance of  $p < 0.005$  level S.E and C.D. at 5 percent level is mentioned wherever required.

**Formation of Dates Pickle**

Pickles prepared with incorporation varying levels of dates and jaggeries were investigated. The formulation was made by varying levels of dates, jaggery, tamarind pulp and spices viz. 50:30:05:15, 40:40:05:15 and 40:30:15:15 percent respectively and data given are illustrated in table 1.

**Table 1:** Formulation for preparation of Date Pickle

Ingredients	Treatments			
	T0	T1	T2	T3
Unripe Mango pieces	50.5 g	-	-	-
Dates	-	50 g	40 g	40 g
Jaggery	-	30 g	40 g	30 g
Chilli powder	5 g	1 g	0.5 g	0.5 g
Salt	13 g	1 g	1 g	1 g
Edible oil	25 ml	4 ml	4 ml	4 ml
Fenugreek powder	2 g	0.5 g	0.5 g	1 g
Tamarind pulp	-	5 ml	5ml	15 ml
Cumin	-	4 g	4 g	4g
Cinnamon	-	0.5 g	0.5 g	0.5 g
Anise	-	4 g	4.5 g	4 g
Turmeric powder	1 g	-	-	-
Mustard seed	3 g	-	-	-
Asafoetida	0.5 g	-	-	-

Where,

T1- 50g Dates + 30 g Jaggery + 05 ml tamarind pulp + 15 g spices

T2- 40g Dates + 40 g Jaggery + 05 ml tamarind pulp + 15 g spices

T3- 40g Dates + 30 g Jaggery + 15 ml tamarind pulp + 15 g spices

Sample T3 of dates pickle was organoleptically acceptable and used for further study.

**Preparation of Dates Pickle**

**Process**

Dried Dates were purchased from the market. Firstly seeds are removed and soaked in tap water for 24 hours. Raw materials such as Tamarind used for pickle preparation were

Tamarind soaked in hot water at 50°C for 30 min and straining the pulp with 20 mm mesh and stored in air tight container. Then the different spices were taken for preparation of spice powder. The spices were roasted up to colour change turns to lightly brownish. And roasted spices are grinded into grinder to formed spice powder. The spices powder was stored in an air tight container. After the preparation of spices powder and tamarind pulp, heating a Jaggery with oil and tamarind pulp at 103 °C – 106 °C for 5 min. Addition of soaked dates and heating at 240 °C for 10 min. Then, it was cool at room temperature, after cooling addition of spices powder, salt and mix well. Stored in glass bottles at room temperature.

**Flow sheet for preparation of dates pickle**



**Results and Discussion**

**Table 2:** Chemical Properties of composition of Dates Pickle

Parameters	Sample (T3)
pH	5.10
Acidity	1.3%
Ash	1.4%
Moisture	58.2%
Fat	6.6%
Protein	8.15%
Carbohydrates	83.85%
Energy value	427.6%

It concludes that pH value of Date Pickle was found to be 5.10 and Acidity 1.3%,

Ash value of Date Pickle was found to be 1.4%, Moisture content 58.2%, Fat content 6.6 %, Protein content 8.15%, Carbohydrate content 83.85% and

Energy value 427.6Kcal.respectively.it concluded that Date Pickle rich in Carbohydrate.

## Sensory evaluation

**Table 3:** Sensory evaluation of Dates pickle

Sample	Color	Flavour	Appearance	Texture	Taste	Overall Acceptability
Control	9	9	9	9	9	9
T1	8	7	8	7	7	7.4
T2	9	7	7	8	7	7.6
T3	9	8	9	9	9	8.8

As evident in sensory evaluation the color score were higher for the sample T2 and T3. The Texture and taste score were 9 higher than T1 and T2 sample. Overall acceptability of T3 sample is more acceptable than sample T1 and T2.

## Conclusion

Conclusively, it emerges that the formulation & standardization of recipe for Dates pickle was carried out successfully prepared by using Dates and other ingredient. The health benefit of Dates and other ingredient are well known so the product is having some enrichment. As regards the organoleptic qualities and Dates pickles processed was excellent followed by Nutritional quality particularly carbohydrate, protein and energy content increased in Dates pickle. This type of value addition by way of nutrient enrichment does certainly help to provide good source of energy. So, the product can be satisfy the consumer in accepts & quality.

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