



**International Journal of Biology, Pharmacy  
and Allied Sciences (IJBPAS)**

*'A Bridge Between Laboratory and Reader'*

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**PRESERVATION OF TUTTI FRUTTI BY USING EXTRACTED PAPAYA SEED,  
CURRY LEAF OIL AND THEIR ACCEPTABILITY**

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Received 15<sup>th</sup> May 2020; Revised 15<sup>th</sup> June 2020; Accepted 17<sup>th</sup> July 2020; Available online 1<sup>st</sup> March 2021

<https://doi.org/10.31032/IJBPAS/2021/10.3.5414>

**ABSTRACT**

The present study is on check the acceptability of tutti frutti preserved with essential oil and how essential oil used as a natural preservative in food product, tutti frutti. This was made by watermelon rind. It is discarded by people but it is nutritious part of a watermelon. Increasing the shelf life of a product is always being a good topic in food industry. So the use of natural preservative in food products in the place of chemicals is a good option for the food industry. Essential oil has antimicrobial, anticancer and anti inflammatory properties According to researches most of the essential oil are edible papaya seed and curry leaf essential oil are also edible but in lesser amount and always diluted with a carrier oil because they are in concentrated form. Essential oil widely used in cosmetics and medicinal field but now these are also used in food industry for aroma, and flavor and as a preservative. There are many methods for the extraction of essential oil, with each method shows some benefits. To balance health among consumers and preserve the quality of food, it is necessary to organoleptic evaluation or sensory properties like body and texture, color and appearance, taste and flavor, aroma in food products and increase the growth of essential oil in food industry. In this study the essential oil was

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extracted from papaya seeds and curry leaf (*Murraya koenigii*). And used as a preservative and check the acceptability of that product.

**Keyword: Natural preservative, essential oil, acceptability, tutti frutti, self life**

## 1. INTRODUCTION

Tutti frutti is a vivid bakery item which has different cleaved and normally sugar coated organic products, or an artificial or natural flavoring simulating the combined flavor of many different fruits. It is most likable in Western countries outside of Italy in the form of ice cream. But at present time in India people has started to like baked product. Tutti fruit used as a garnishing product in baked product. It enhance the flavor and appearance of the product [1].

An essential oil can be extracted from any part of plant like leaves, roots, stem, flower, seeds etc. And it is not necessary that every kind of plant and its parts contain essential oil. It is depends on the plant type and structure. Like in some plants the essential oil can be found in plants stem and leaves or bark, while other plant contain essential oil within the flower. Essential oil mostly used in aromatherapy because most of the essential oils are contain a pleasant odor. Besides giving a plant a individual smell, some essential oil have preservative and defensive properties that protect the plant by keeping insect and herbivorous away [2].

Since old times, commercial antimicrobial agents have been applied as an approach to oversee food crumbling or tainting. These days, user's worries toward engineered additives have brought about expanding consideration on different characteristic natural antimicrobials, for example, essential oils. Essential oils have the ability to be used as a food preservative for cereals, grains, pulses, fruits, and vegetables.

Some researches show that most of the essential oil have antimicrobial component, so maybe it is possible that essential oil can be able to increase the shelf life of food. Essential oils have verbalized antimicrobial and food preservative properties since they involves an assortment of dynamic element (e.g., terpenes, carotenoids, terpenoids, coumarins, curcumins) that have significant importance in the food industry [3-5].

Watermelon might be one of the most properly named natural products. It's a melon that is 92 percent trusted Source water. It's likewise got a sound measure of nutrient A and C, potassium, magnesium, and other significant supplements. The most well known piece of the watermelon is the pink

flesh, however like its cousin, the cucumber, the entire thing is edible. This incorporates the green pieces that generally end up in the manure container. The rind, which is the green skin that keeps that entire water-logged flavorful organic product safe, is totally edible [6].

It is a natural essential oil extracted from papaya seed. Papaya seeds represent about 20% of the all out new fresh fruit weight. The seeds contain significant levels of lipid and along these lines can be another wellspring of edible oil. Various advances have been utilized for extraction of raw crude oil from papaya seeds [7].

The papaya seed oil had rosy yellow shading. Oleic, palmitic, linoleic, and stearic acids were the most plentiful unsaturated fats found in the papaya seed oil [8-10]. Previous researcher decided the unsaturated fat organization and bioactive mixes of the oil separated from seeds of papaya, Chilean assortment (*Carica pubescens* or *Carica candamarcensis*), and checked that this oil had an intriguing creation (72% of monounsaturated unsaturated fats with 71% of oleic acid) speaking to a promising new wellspring of an extraordinary plant oil for various applications.

*Murraya koenigii* has a place with family Rutaceae, which have 150 genera and more

than 1600 species. It is a fragrant, pubescent, deciduous bush or little tree and broadly disseminated in south east Asia, Australia and the Pacific islands. It can grow up to 6 m in tallness and distance across is around 15-40 cm with short trunk. The leaves are pinnate and 15-30 cm long, with 11-25 leaflet, every leaflet length is around 2-4 cm and broadness is of 1-2 cm. Edges unpredictably make, petioles 2-3 mm long. Blossoms of this tree are bisexual, finished, pleasantly scented, white, followed, customary with normal distance across of completely opened bloom being in normal 1.12 cm inflorescence, terminal cymes each bearing 60-90 blossoms. Curry leaf normally utilized as flavoring, this leaf adds a unique flavor to each dish. However, there is something else entirely to the modest curry leaf than basically flavor. Pressed with starches, fiber, calcium, phosphorous, irons and nutrients like nutrient C, nutrient A, nutrient B, nutrient E, curry leaves help your heart work better, battles diseases and can breathe life into your hair and skin. The essential oil of curry leaves is plentiful in iron, minerals, Vitamin C, B, A and E. It has been utilized externally just as inside.

Carrier oils cause it feasible for individuals to appreciate the advantages of applying essential oils to their skin without enduring

irritation. Numerous carrier oils have their own helpful therapeutic properties, implying that there are incalculable blends of medical advantages when they are utilized.

#### **In this study olive oil used as carrier oil-**

Olive oil is the common oil separated from olives, the product of the olive tree. About 14% of the oil is soaked fat, while 11% is polyunsaturated, for example, omega-6 and omega-3 unsaturated fats. Be that as it may, the prevalent unsaturated fat in olive oil is a monounsaturated fat called oleic corrosive, making up 73% of the absolute oil content. Studies propose that oleic corrosive lessens irritation and may even affect sly affect qualities connected to malignant growth. Monounsaturated fats are likewise very impervious to high warmth, making additional virgin olive oil a better choice for cooking.

Is a scientific order that analyses and measures human reactions to the use of essential oil as a natural preservative in tutti frutti which was made up of watermelon rind, for example appearance, contact, smell, texture, temperature and taste. In schools it gives a perfect chance to understudies to assess and give feedback on their dishes, test products and experimental designs.

## **2. MATERIAL AND METHODS**

**Materials:** Papaya fruit was purchased from a local market of Lucknow city. Then

collected seeds and extraction was performed as describe in next section. And curry leaves were collected from houses in rajani khand, Lucknow. And extraction of essential oil was done by as described in next section. Ingredients to make tutti frutti such as sugar and essence and fruit color were procured from local grocery store of the Lucknow city. And watermelon bought from local market of Lucknow city.

**Extraction Of Essential Oil-** Essential oil used in this study as a preservative are-

#### **Papaya seed essential oil**

#### **Curry leaf essential oil**

Washed the papaya seeds and and curry leaf. With the help of dehydrator, dehydrate papaya seed (40 °C temperature for 6-7 hours), curry leaf (40°C temperature for 2-3 hours). And crush them separately with the help of mortar pestle. And extract the essential oil with the help soxhlet apparatus by using non polar solvents then separate the essential oil by using a evaporator.

#### **Product Development-**

#### **Tutti frutti made by water melon rind-**

Tutti frutti made with watermelon rind which is mostly discarded by the people. Rind is absolutely edible so it is a nice idea to make tutti frutti with watermelon rind and to increase their self life use natural preservative i.e. essential oil.

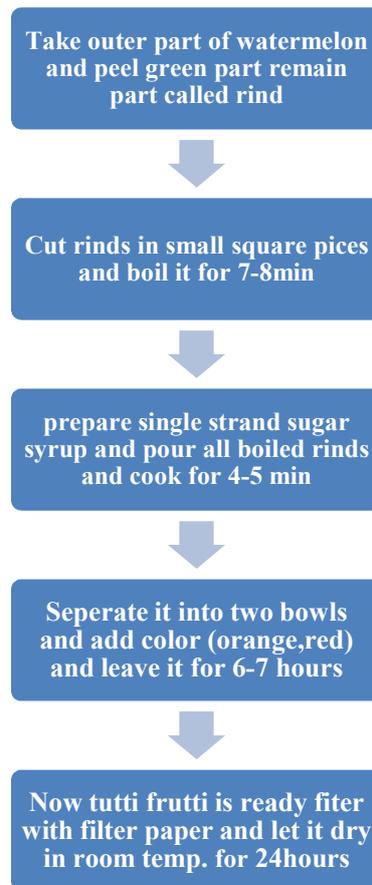


Figure1: Flow chart of techniques used in making tutti frutti

**Adding natural preservative in tutti frutti-**

Divide tutti frutti in four parts-

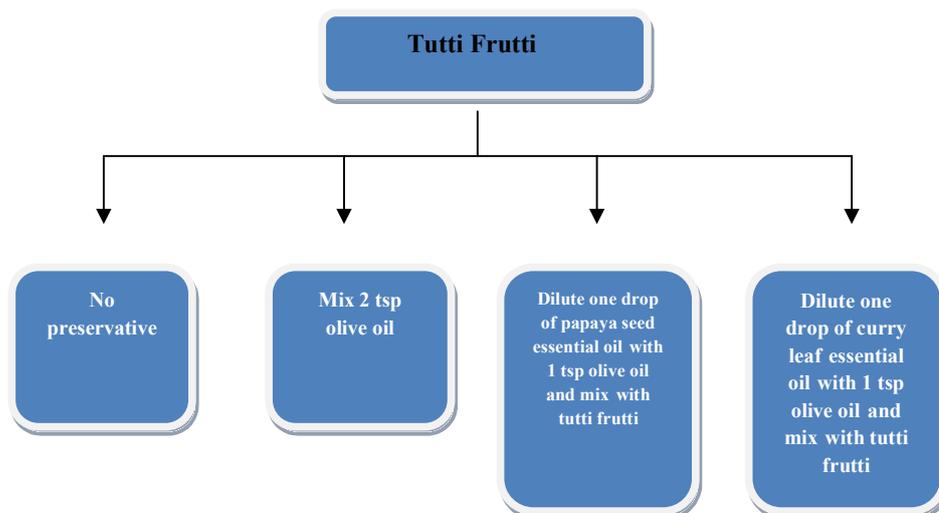


Figure 2: Processor of adding preservative to product

**Material used in packaging of essential oil-**

Small Glass bottle.

**Material used in packaging of tutti frutti-**

small transparent poly bags.

**Packaging of essential oil-** Pour into bottles and seal with help of sealing machine.

**Packagings of tutti frutti-** put tutti frutti in poly bag and seal it with the help of sealing machine.

**Check the acceptability of product among the people-**

Check the acceptability of product among 10 people. Between all the samples which is a comparative study. Organoleptic properties were evaluated by the consumer. Then score cards were filled by them. The best accepted sample of tutti frutti was evaluated by the given core of consumers. Calculate the given score.

**Shelf Life of Preserved Tutti Frutti by different Antimicrobial Coating**

Take all different solution of oil and mix with tutti frutti separately. Pack the tutti frutti in polythene. Store the packed tutti frutti in a freezer. Observe the self life at time using different parameters.

**4. RESULTS AND DISCUSSIONS**

Acceptability check by the 10 random people on hedonic scale and marking was done on the four parameters-

- **Color and appearance**

- **Body and texture**
- **Flavor and Taste**
- **Overall Acceptability**

**Treatments****Color and appearance shown in Table 2**

**Figure 3** shows that the sample T1 is most accepted among the consumers and it gets highest scoring for color and appearance. Then after sample T3 and T4 and T2 respectively. Sample T1 have higher score for color and appearance, sample T2 have least score of for color and appearance.

**Parameter 2 – Body and Texture (Table 3)**

**Figure 4** shows that the sample most accepted sample was T1 by 10 random people and its gets highest scoring for body and texture. Then after sample T2 and sample T3 are same and T4 respectively.

**Parameter 3: Flavor and Taste (Table 4)**

**Figure 5** shows that the sample most accepted sample was T1 by 10 random people and its gets highest scoring for Flavor and taste. Then after sample T2 and sample T3 and sample T4 respectively. Sample T4 have higher score for flavor and taste, sample T1 have lower score for flavor and taste.

**Parameter 4: Overall Acceptability (Table 5)**

**Figure 6** shows that the sample most accepted sample T1 by 10 random people

and its gets highest scoring for Overall acceptability. Then sample T3 & T2 and t4 sample respectively. Sample T1 have higher score for overall acceptability, sample T4 have lower score for overall acceptability.

Overall Calculation Overall calculation are done to know most acceptability of the product in all terms of quality by sensory evaluation scoring given by the random people, in this all scoring of texture, color,

flavor and taste are calculated in the table, by this we get do statistical analysis and obtained standard deviation, average and other calculations (**Table 6**).

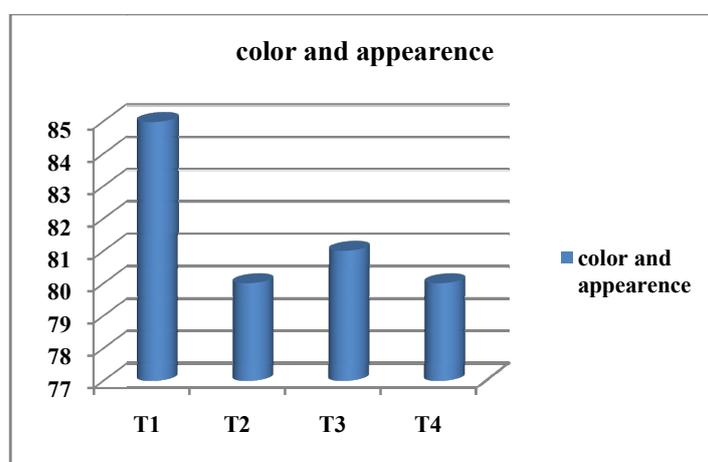
**Table 6** shows the overall calculation of average marks given by each person in each parameter, with calculated average values & S.D. of each sample on the basis of each parameter.

**Table 1: Distribution of Sample**

Treatments	Sample Preparation
T1	Tutti frutti with no preservative
T2	Tutti frutti preserved with olive oil
T3	Tutti frutti preserved with papaya seed essential oil+olive oil
T4	Tutti frutti preserved with curry leaf essential oil+olive oil

**Table 2: Individual marking for color and appearance**

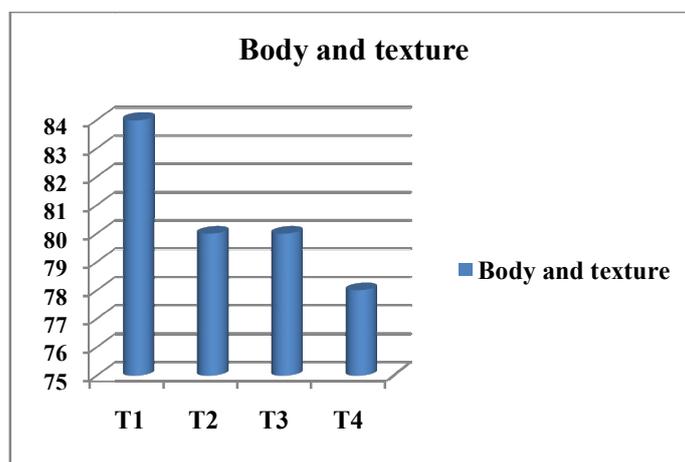
Consumers	T1	T2	T3	T4
1	9	9	8	8
2	9	9	9	9
3	9	8	9	8
4	8	8	8	8
5	8	7	7	7
6	8	8	8	8
7	9	8	9	8
8	8	7	7	7
9	9	8	8	9
10	8	8	8	8
Total	85	80	81	80



**Figure 3: Graphical Presentation of color and appearance**

**Table 3: Individual marking for body and texture**

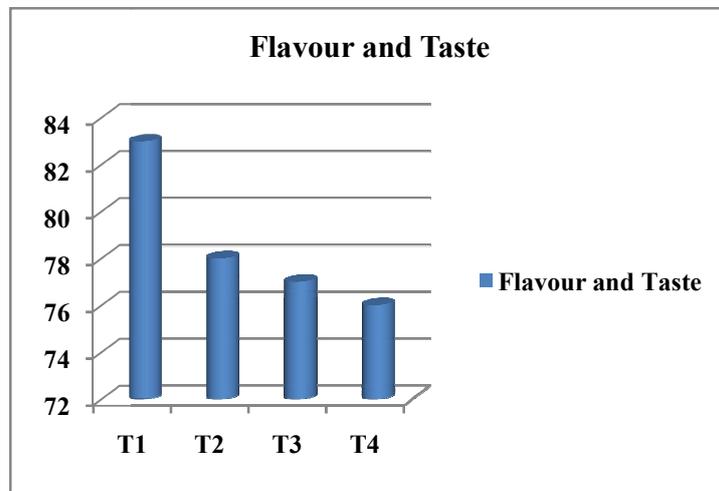
consumers	T1	T2	T3	T4
1	8	8	8	8
2	8	9	7	8
3	9	8	8	7
4	8	7	8	8
5	8	8	7	8
6	9	8	8	8
7	8	8	8	8
8	8	9	9	8
9	9	8	8	7
10	9	7	9	8
<b>Total</b>	<b>84</b>	<b>80</b>	<b>80</b>	<b>78</b>



**Figure 4: Graphical Representation- Body and Texture**

**Table 4: Individuals marking for flavor and taste**

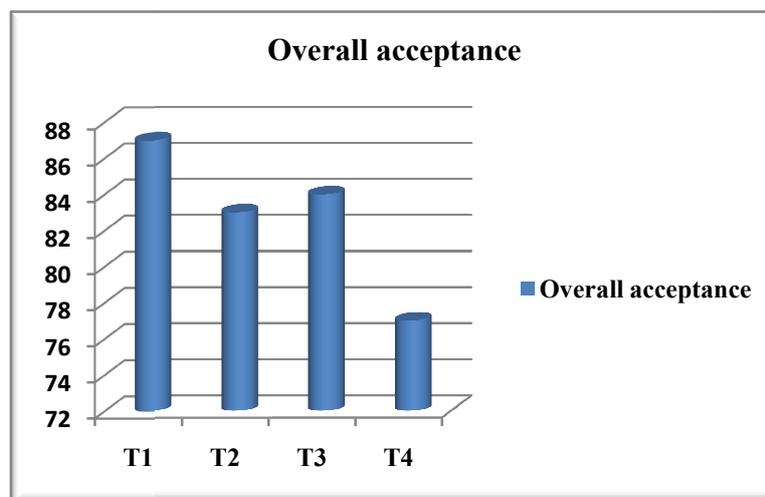
Consumers	T1	T2	T3	T4
1	8	8	8	8
2	9	8	8	8
3	9	7	8	7
4	8	9	9	8
5	9	8	8	8
6	8	7	7	7
7	9	8	7	8
8	8	8	8	8
9	7	7	7	7
10	8	8	7	7
<b>Total</b>	<b>83</b>	<b>78</b>	<b>77</b>	<b>76</b>



**Figure 5: Graphical Presentation of Flavor and Taste**

**Table 5: Individual Markings for Overall Acceptability**

Consumer	T1	T2	T3	T4
1	9	8	9	8
2	9	9	9	8
3	9	9	8	7
4	9	8	8	8
5	9	8	9	8
6	8	8	8	8
7	9	8	8	7
8	8	9	8	7
9	8	8	8	8
10	9	8	9	8
<b>Total</b>	<b>87</b>	<b>83</b>	<b>84</b>	<b>77</b>



**Figure 6: Graphical Presentation of Overall Acceptability**

Table 6: Overall Calculation

Parameters	T1	T2	T3	T4
1	85	80	81	80
2	84	80	80	78
3	83	78	77	76
4	87	83	84	77
Total	339	321	322	311
Average	84.75	80.25	80.50	77.75
Standard deviation	1.70	2.06	2.88	1.70

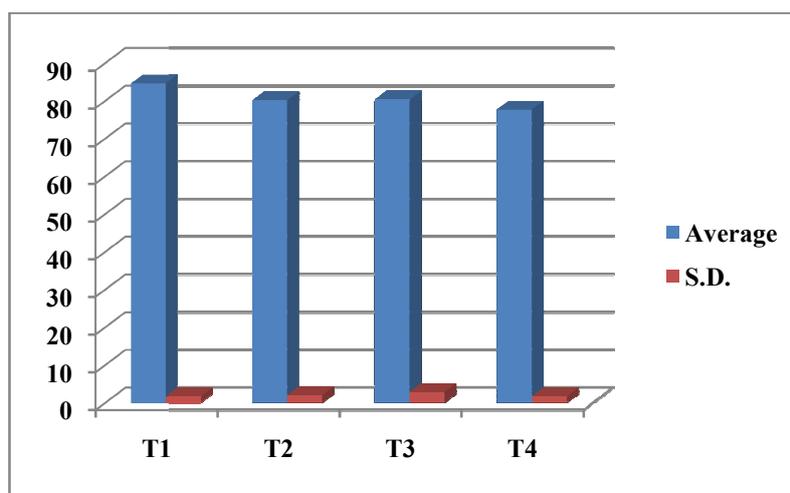


Figure 7: Graphical presentation of standard deviation and average

## 5. SUMMARY AND CONCLUSION

To check the acceptability of “Tutti Frutti preserved with essential oil” product was done by using 9-point hedonic scale by 10 random people. The scoring for tutti frutti were various parameter i.e. color and appearance, body and texture, flavor and taste, and overall acceptability. People were like to eat homemade tutti frutti by watermelon rind. To adding the essential oil there was a little change in its flavor and aroma. But that change was also acceptable and adding natural preservative can increase the self life and its nutritive value.

## 6. Acknowledgement

I am very happy to express my gratitude to Prof. Sunita Mishra, Dean & Head, and Department of Food Science & Technology for his kind suggestion and providing me opportunity to work on this project. I am very thankful to my supervisor Dr. Neetu Singh, Assistant Prof. Department of Food Science & Technology and Dr. s. I would like to express my sincere regards and thanks to my parents who support me lot while completing this research and special thanks to research scholars and also to my classmates and friends.

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