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**Latpate VN**  
Department of Food Process  
Engineering, Vaugh Institute of  
Agricultural Engineering &  
Technology, Sam Higginbottom  
University of Agriculture,  
Technology & Sciences,  
Allahabad, Utter Pradesh, India

**Renge BB**  
Department of Food Process  
Engineering, Vaugh Institute of  
Agricultural Engineering &  
Technology, Sam Higginbottom  
University of Agriculture,  
Technology & Sciences,  
Allahabad, Utter Pradesh, India

**Veer SJ**  
Department of Food Process  
Engineering, Vaugh Institute of  
Agricultural Engineering &  
Technology, Sam Higginbottom  
University of Agriculture,  
Technology & Sciences,  
Allahabad, Utter Pradesh, India

**Corresponding Author:**  
**Latpate VN**  
Department of Food Process  
Engineering, Vaugh Institute of  
Agricultural Engineering &  
Technology, Sam Higginbottom  
University of Agriculture,  
Technology & Sciences,  
Allahabad, Utter Pradesh, India

## Sensorial evaluation of tomato paste packed in glass and pet bottle under controlled conditions

Latpate VN, Renge BB and Veer SJ

### Abstract

Tomato is rich source of vitamin C, Sugars, lycopene and is perishable in nature because of that it is needs to study the storage life of tomato. In view of these facts present investigation was done to evaluate the effects of packaging material on sensory attributes of tomato paste. Tomato paste packed in two different packaging material and sensory analysis was carried out. It is clear from the data given that in table that organoleptic rating increased at all the characters up to 35 days after storage there after declined.

**Keywords:** Tomato paste, sensory evaluation, PET and Glass bottle

### 1. Introduction

Tomato (*Lycopersicon esculentum* Mill.) is one of the most important edible and nutritious vegetable crops in India. It is cultivated in almost all home gardens and also in the field by the use of rainfall and irrigation for its adaptability to wide range of soil and climate in India. It ranks next to potato and sweet potato in respect of vegetable production in the world. It is widely cultivated in tropical, sub-tropical and temperate climates and thus it ranks third in terms of world vegetable production FAO (2006).

Tomato is third vegetable next to potato and sweet potato in consumption. Its processed form include pulp, puree, sauce, juice, paste and peeled whole tomato Hayes *et al.*, (1998). Tomato is popular vegetable fruit because it supplies vitamin-c, adds variety of colour and flavour to the foods. Tomatos are used as salad, paste ketchup, puree, juice, sauce, powder, and in many other ways. Tomatoes are low in calories, about 35 for a medium tomato, but proportionately high in sugar corresponding 8 grams. Its juice is naturally low in sodium (One cup has 1% of your daily value) and zero fat. It is also a good source of copper, iron, magnesium, manganese, niacin, pantothenic acid, thiamine and vitamin K; and a very good source of folate, potassium, vitamins A, B6 and C Gould, (1974)<sup>[4]</sup>.

Customer are increasingly offering PET bottles due to reason of hygiene and being able to carry bottle home. The major soft drink manufacturer such as Pepsi, Coke, and Parle are installing new PET bottling line in all their bottling plants in India to cater the growing demand for PET bottles. In the present investigation the various packaging material used inclusive of glass bottle and PET bottle. Plastic packaging is increasingly used for economic reasons and most widely used as PET (Polyethylene Terephthalate). Development of new PET technologies as multilayer PET, tend to decrease permeability to oxygen of in order to maintain quality of tomato paste.

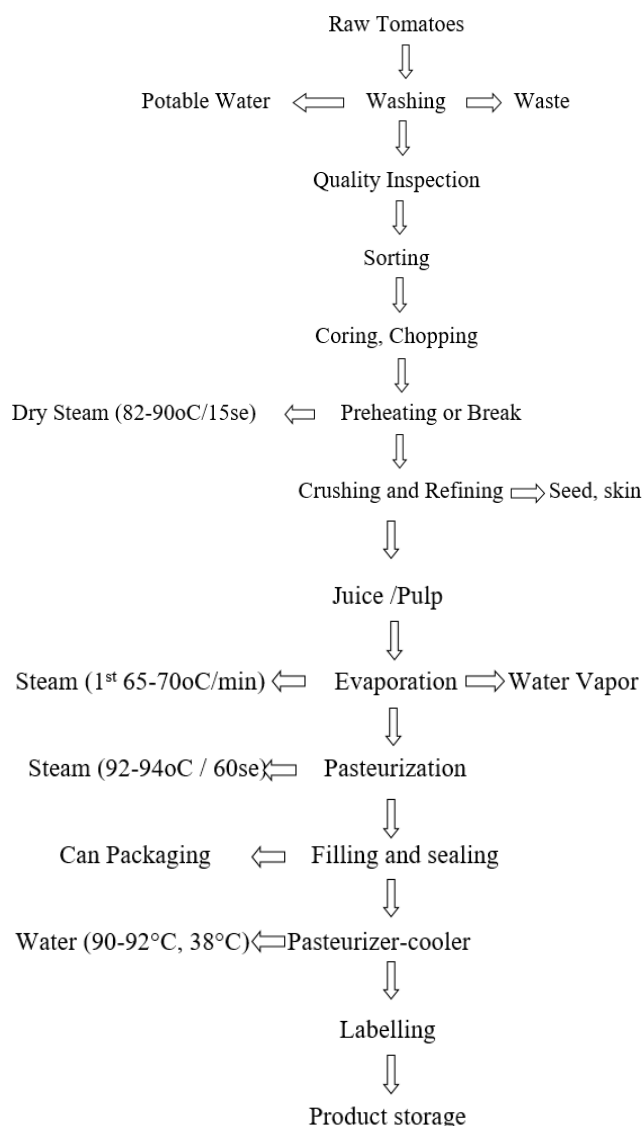
In view of the perishability of tomato paste the present investigation was carried out to know the effects of PET and Glass bottle on various sensorial properties of tomato paste.

### 2. Materials and Methods

#### 1 Procurement of raw material

Tomatoes were purchased from local market of Allahabad. Care was taken that the tomato should be fully ripe and it should be red and free from any damage. The packaging of tomato paste in glass and PET bottles to increase the shelf life of paste were carried out in the department of food process engineering. SHUATS, Allahabad. During the summer season of the year 2017- 2018.

## 2.1 Methods for standardization of Tomato-Paste



## 3. Results and Discussion

### Sensory analysis of tomato paste

Organoleptic scoring was done to work out the overall

acceptability of the product consumer. The sensory evaluation of the product was undertaken by a panel of the judges considering the sensory evaluation of the product was undertaken by a panel of the judges considering the sensory attributes like colour appearance taste, flavour and overall acceptability on 9 point hedonic scale ranging from like to dislike extremely as narrated in the material and methods. The mean score of the different attributes and overall acceptability are reported.

It is clear from the data given that in table that organoleptic rating increased at all the characters upto 35 days after storage there after declined.

### 4. Colour and Appearance

Mean score of colour and appearance of the tomato paste prepared in glass and PET bottle at 28° brix in given table and depicted in the mean of data exhibited that the packaging material have significantly influenced the colour and appearance of tomato paste. The tomato paste packed in glass bottle at 28 brix was rated best (8.3) in colour and appearance which was significantly influenced the colour and appearance of tomato paste.

### Taste

The mean organoleptic score for taste are given in table (1) and graphically shown in fig. (4.1) maximum score was obtained score was obtained in glass bottle at 28° brix (8.44). Better retention of taste in glass bottle at 28 brix might be due to corresponding higher value of T.S.S. ascorbic acid and control pH

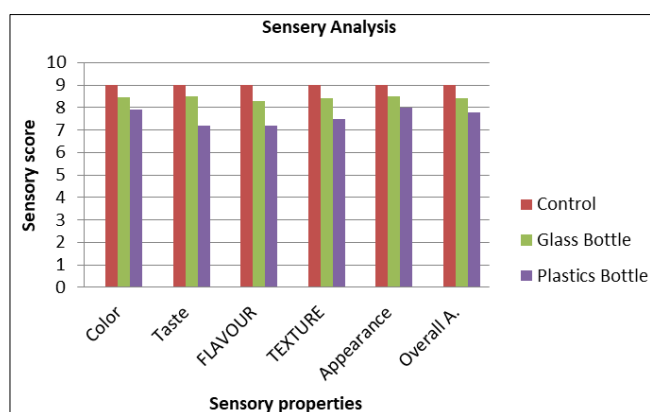
### Overall acceptability

Mean score of overall acceptability are given in table (1) of the tomato paste prepared in 2 different packaging materials at 28 brix presented in table (1). It is obvious from the table that the packaging material that is glass and PET bottle have significantly influenced the overall acceptability given by panel of judges.

However, the organoleptic characters showed a gradual increase during the storage period upto 45 days.

**Table 1:** Sensory analysis of tomato paste

Brix	Packaging	Overall Acceptability					
		Color	Taste	Flavour	Texture	Appearance	Overall. A
28°B	Control	9	9	9	9	9	9
	Glass Bottle	8.38	8.44	8.22	8.33	8.44	8.33
	Plastics Bottle	7.77	7.11	7.11	7.55	8	7.66



**Fig 1:** Sensory analysis of tomato paste

### 5. Conclusion

From the sensory analysis of tomato paste packed in glass bottle showed the significant results of sensory analysis as compared to paste packed in PET bottle. It could be also noted that product shelf stables up to 35 days form its preparation

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