



## **Production of Wine from Tomatoes**

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### **ABSTRACT**

*Tomato is the world's largest vegetable crop because of its wide spread production and special nutritive value. It is a rich source of vitamin A and C, it also contains minerals like iron, phosphorus and pigments such as Lycopene and  $\beta$ -carotene. Tomato is commonly used in the products like ketch-up, sauce, chutney, soup, paste, puree etc. Apart from these food products, tomato is also used to prepare wine due to its easy availability and its nutritional value. Wine is an alcoholic beverage made from fermented fruit juice usually that of grapes. The consumption of wine has several health benefits like lowering the mortality from cardiovascular disease and cancer, delaying dementia and preventing arthritis, etc. The tomato although commonly classified as vegetable, it is really a fruit berry as it exhibits all of the common characteristics of berries. The studies related to tomato wine were very few so, the suitability of tomato juice for wine making was tested in the present work. The wine produced from tomatoes is desired quality and palatable.*

**Key words:** Tomato, Tomato juice, Wine, Nutritional value.

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### **INTRODUCTION**

The drink which results from the fermentation by the Yeast cells is defined as Wine. It is a complex alcoholic beverage that contains numerous chemical components, including water, alcohol, acids, sugar, phenolics, nitrogenous compounds, vitamins and various volatile compounds which contribute the unique aroma, taste and oral sensation to the wine [1]. Tomato (*Lycopersicon esculentum* Mill.) is one of the most important crops of the world and is a low-calorie vegetable. Its fat content is very low and it has zero cholesterol level. It is an important source of potassium, phosphorus, magnesium and iron. Tomato contains a compound known as Phytosterol, is a compound that helps to keep the cholesterol level low. It is also the most prominent source of Lycopene [2, 3]. In recent years Tomato is processed for Wine production. The volatile profile of the wine is also studied in detail before and after aging [4]. The production of tomato wine was standardized with reference to different variables like size of inoculums, pH of tomato juice, quality and time of fermentation [5].

### **MATERIAL AND METHODS [5]**

#### **Collection of tomatoes and preparation of juice:**

The healthy tomatoes (20 in number) were collected from local market. They were washed thoroughly and dried at room temperature. The dried tomatoes were crushed using mortar and pestle in 600mL of sterile distilled water. The filtration of tomato juice was carried out using a muslin cloth to remove skin and other impurities. About 825mL tomato juice (must) was obtained. To remove bacterial contaminants, the must was heated at 68°C for 25 min. Then must was cooled at freezing temperature.

#### **Wine preparation:**

##### **Preparation of Inoculums**

In 75 mL must 10% glucose and 10 g biomass of freshly grown *Saccharomyces cerevisiae* yeast isolate (Lab isolate from spoiled pomegranate on Sabouraud's agar) and incubated on the shaker at 175 rpm for 48-h at 28°C. This culture was used to inoculate three sets (bottles) of must for wine fermentation.

##### **Wine Fermentation**

To the each of three vessels (clean glass bottles of 500mL capacity) 250 mL must 10% glucose and 25mL of inoculums was added. The bottles containing musts were kept for incubation at 25°C for 6 days. The intermittent shaking was done during the incubation period. After fermentation, distillation was carried out. The 100 mL of distillate was obtained from each bottle after the distillation. The distilled wines were decanted in a sterile flask and stored for aging at 4°C for 15 days.

## Quality Tests on Wines

After aging the three wine samples were subjected to measurement of pH using pH meter, the percentage of residual sugar was calculated using hand refractometer, estimation of alcohol by CAN method and smell, taste, odour and colour were judged organoleptically.

## RESULTS AND DISCUSSION

The physicochemical parameters of raw musts are presented in Table-1 and the quality parameters of wines produced are presented in Table-2.

It is evident from Table-1 that the raw musts of wine had pH range of 5.1-5.3 which was suitable for yeast growth, sugar content of 11.9-12.1 and reddish colour.

It is evident from Table-2 that the sugar concentration of must before fermentation was found to be 12%(Table-1) was drastically dropped after the fermentation period showing utilization of sugar as carbon source by added yeast inoculum and was found to be in the range of 6.5-7.5 % which was desired for proper taste. The final wine had Sweet to sour smell, Sweet sour taste, Sweet odour, 6.1-6.4pH and the colour of raw must which was reddish was changed to attractive reddish pink. The produced wine was rich in flavor and aroma.

The previous studies reported wine making from tomatoes and mentioned that tomatoes as substrate are very useful for wine making [3,4,5].

**Table 1: Physicochemical Characters of Raw Musts**

Vessel	pH of must	Sugar content %	Color of juice
Bottle-1	5.2-5.3	11.9	reddish
Bottle-2	5.1-5.2	12	reddish
Bottle-3	5.2-5,3	12.1	reddish

**Table 2: Physicochemical Characters of Wine**

Test	Bottle-1	Bottle-2	Bottle-3
Smell	Sweet to sour	Sweet to sour	Sweet to sour
Taste	Sweet sour	Sweet Sour	Sweet sour
Odour	Sweet	Sweet	Sweet
Colour	Reddish Pink	Reddish Pink	Reddish Pink
pH	6.1	6.3	6.4
Sugar content	7.5 %	7 %	6.5 %
Alcohol percentage	6.8	6.6	6.9

## CONCLUSION

Tomatoes can be used as potential substrates for the production of wine and hence tomatoes can be an alternative choice for the commercial production of wine.

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