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Effect of T.S.S. and pH levels on chemical composition and fermentation of sapota must

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ABSTRACT : From the present study it was observed that, significantly highest reducing sugar, titratable acidity, ascorbic acid content were recorded by interactions T_2P_3, T_2P_1 and T_2P_1, respectively. The lowest tannin content was recorded by interaction T_4P_3 and it was at par with T_3P_3, T_4P_1 and T_4P_2. During fermentation of must, the amount of T.S.S. utilized showed increasing trend from T_1 to T_2 and later on it decreased at T_3 and T_4 level of T.S.S. In case of pH levels, P_2 and P_3 level showed better reduction in T.S.S. during fermentation than P_1.The maximum decrease in T.S.S. during fermentation of must was recorded by interaction T_2P_3. The pH at the end of fermentation was found to be increased over initially adjusted pH levels. The pH content at end of fermentation showed increasing trend with increase in pH levels. However, T.S.S. level did not affect the pH content of must at the end of fermentation. The interaction T_1P_1 recorded lowest pH at the end of fermentation. Looking to the reduction in T.S.S. during fermentation and chemical composition of must, interaction T_3P_2 was found to be good. This interaction can be used for preparing must to produce good quality wine.

KEY WORDS : T.S.S., pH, Fermentation, Sapota must

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Sapota (*Manilkara achras* (Mill) Forsberg) is one of the prominent dessert fruit, belongs to family sapotaceae. India is leading producer of sapota. The area under sapota in India during 2010 - 2011 was 160 thousand ha with a production of 1424 thousand metric tones. Sapota is mainly valued for its sweet and delicious fruits. Sapota fruit is a good source of sugar which ranges between 12 and 14 per cent. A 100 g of edible portion of fruit contains moisture (73.7 g), carbohydrates (21.49 g), protein (0.7 g), fat (1.1 g), calcium (28 mg), phosphorus (27 mg), Iron (2 mg) and ascorbic acid (6 mg) as reported by Bose and Mitra (1990).

Fermentation is a viable technique in the development of new products with modified physico-chemical and sensory qualities especially flavour and nutritional components. Alcohol, acetic and lactic acid fermentations are important from the point of view of quality in food production. Out of these, alcoholic fermentation is widely employed for the preparation of beverages in which alcohol is major constituent. The technology of manufacturing wine from grape is quite advanced. However, limited information is available on the preparation of wines from other fruits, especially sapota with respect to different T.S.S. and pH levels. It was, therefore, thought to utilize sapota fruits for wine making. While preparing wine, efforts were made to study the effect of T.S.S. and pH levels on chemical composition and fermentation of sapota must.

RESEARCH METHODS

The present investigation was conducted at Fruit Beverages Research Center, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli during the year 2011-12, after registering at Post Graduate Institute of Post Harvest Management, Killa, Taluka-Roha, Dist- Raigad, Maharashtra. For this study juice was extracted from the selected ripe sapota fruits of Kalipatti cultivar. After treating with 0.1 per cent pectinase enzyme, juice was kept overnight in cold storage (12 0C). Next day clear juice was obtained by decanting and used for preparation of must by adjusting the T.S.S. to 25, 30, 35 by addition of sugar along with control (19.6 0B) and pH levels were adjusted to 3.0, 3.5, 4.0. by addition of citric acid.