

Effect of T.S.S. and pH levels on chemical composition of kokum (*Garciniaindica*) must and its fermentation

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SUMMARY : The present study focused on effect of T.S.S. and pH levels on chemical composition and fermentation of kokum must. In case of kokum must, the reducing sugars (6.12 to 8.56 %) showed increasing trend with increase in T.S.S. levels, while the anthocyanin (3655 to 2911.33 mg/100g) and tannin content (0.205 to 0.172 %) showed a decreasing trend. However, the acidity do not showed any increasing or decreasing trend with increase in T.S.S. levels of the must. Considering the effect of pH levels on must, the acidity (2.34 to 0.99%) showed a decreasing trend with increase in pH levels. However, reducing sugars, anthocyanin and tannin content did not show any increasing or decreasing trend with increase in pH levels of must. The interaction T_2P_3 showed better fermentation ability and hence this interaction can be used for preparing must for preparation of kokum wine.

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

How to cite this paper : Sarkale, A.N. and Pawar, C.D. (2012). Effect of T.S.S. and pH levels on chemical composition of kokum (*Garciniaindica*) must and its fermentation. *Internat. J. Proc. & Post Harvest Technol.*, **3** (2) : 291-295.

Research chronicle : Received : 30.09.2012; **Revised :** 20.10.2012; **Accepted :** 25.11.2012

In India, kokum is grown widely in tropical rain forest of western ghat mainly Konkan region of Maharashtra, Goa, South Karnataka, Coorg, Wyanand, the lower slopes of Nilgiri hills and also in Andaman. In these areas, kokum is planted in the backyard or in orchards. In Konkan region of Maharashtra, it is planted in almost every household though the exact area is not known, it is estimated to be on the area of 1000 ha which produces 4,500 tonnes of kokum fruits (Anonymous, 2008).

The fresh kokum rind contains moisture 80 per cent, protein 1.92 per cent, crude fibre 14.28 per cent, total ash 2.57 per cent, tannin 2.85 per cent, pectin 5.71 per cent, starch 1 per cent, crude fat 10 per cent, acid (as hydroxy citric acid) 22.80 per cent, pigment 2.40 per cent, ascorbic acid 0.06 per cent,

carbohydrates by difference 35 per cent (Anonymous, 2005).

Being fruit based fermented and undistilled product, wine contains most of the nutrients present in the original fruit juice. The nutritive value of wine is increased due to release of amino acids and other nutrients from yeast during fermentation. Fruit wines contain 8 to 11 per cent alcohol and 2 to 3 per cent sugar with energy value ranging between 70 and 90 Kcal per 100 ml.

The therapeutic properties of the kokum fruit have been described in traditional medicine Ayurveda. These include its usefulness to relieve sunstroke, very good appetizer, as a cardiotoxic, for tumours and heart diseases. It is also known to contain hydroxy citric acid (HCA), a potential anti-obesity agent and fights cholesterol. The juice of ripe fruit have appealing red colour. It was therefore, thought to utilize ripe kokum fruits for wine preparation. By developing such technology the post harvest losses in kokum fruit can be reduced. This will also help to generate rural employment in addition to higher returns to the farmers. Hence, in the present investigation efforts were made to study the effect of T.S.S. and pH levels on chemical composition and fermentation of kokum must.

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EXPERIMENTAL METHODS

Well ripe, sound, healthy and disease free kokum fruits