

Production and Evaluation of Physicochemical, Nutritional, Sensorial and Microbiological Properties of Mixed Fruit Juice Blend Prepared from Apple, Orange and Mosambi

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Abstract : In recent age significant importance is given for the development of nutritious and health beneficial foods. Fruit juices collected from different fruits when blended that improves not only the physicochemical and nutritional properties but also enhance the sensorial or organoleptic properties. The study was carried out to determine the physico-chemical, nutritional, microbiological analysis and sensory evaluation of mixed fruit juice blend. Juice of orange (*Citrus sinensis*), apple (*Malus domestica*), mosambi (*Citrus limetta*) were blended in the ratio of sample-I (30% apple:30% orange:40% mosambi), sample-II (40% apple :30% orange :30% mosambi), sample-III (30% apple :40% orange :30% mosambi) , sample-IV (50% apple :30% orange :20% mosambi), sample-V (30% apple:20% orange:50% mosambi), sample-VI (20% apple :50% orange :30% mosambi) to evaluate all quality characteristics. Their colour characteristics in terms of hue angle, chroma and colour difference (ΔE) were evaluated. The physico-chemical parameters analysis carried out were total soluble solids (TSS), total titratable acidity (TTA), pH, acidity (FA), volatile acidity (VA), pH, and vitamin C. There were significant differences ($p < 0.05$) in the TSS of the samples. However, sample-V (30% apple: 20% orange: 50% mosambi) provides the highest TSS of 9.02gm and significantly differed from other samples ($p < 0.05$). Sample-IV (50% apple: 30% orange: 20% mosambi) was shown the highest titratable acidity (.59%) in comparison to other samples. The highest value of pH was found as 5.01 for sample-IV (50% apple: 30% orange: 20% mosambi). Sample-VI (20% apple: 50% orange :30% mosambi) blend has the highest hue angle, chroma and colour changes of 72.14, 25.29 and 54.48 and vitamin C, i.e. Ascorbic acid (.33g/l) content compared to other samples. The nutritional compositions study showed that, sample- VI (20% apple: 50% orange: 30% mosambi) has the significantly higher carbohydrate (51.67%), protein (.78%) and ash (1.24%) than other samples, while sample-V (30% apple: 20% orange: 50% mosambi) has higher dietary fibre (12.84%) and fat (2.82%) content. Microbiological analysis of all samples in terms of total plate count (TPC) ranges from 44-60 in 101 dilution and 4-5 in 107 dilutions and was found satisfactory. Moreover, other pathogenic bacterial count was found nil. The general acceptability of the mixed fruit juice blend samples were moderately liked by the panellists, and sensorial quality studies showed that sample-V (30% apple: 20% orange: 50% mosambi) contains highest overall acceptability of 8.37 over other samples and can be considered good for consumption.

Keywords : microbiological, nutritional, physico-chemical, sensory properties

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