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STUDIES ON THE IMPROVEMENT OF ORGANOLEPTIC PROPERTIES OF MANGO DRINK THROUGH BLENDING

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Blending technique could be used to advantage for improving quality characteristics of mango drinks. Best quality drinks were obtained from blends that contained pulp from Anwar Ratol and sucking type mangoes in equal proportions. Next in order of preference were the blended drinks that contained Chaunsa followed by those which contained Langra. Least captivating properties were possessed by drink made entirely from sucking type mangoes.

INTRODUCTION

Mango ranks second among the most popular fruits of Pakistan on account of its bizarre flavour and taste. A survey (Anonymous, 1977) conducted in 1976-77 showed that the total area under this fruit was 1,14,000 acres yielding 5,69,000 tons of fruit annually in Pakistan. Mango is a rich source of acrotene, carotenoids and ascorbic acid. It also contains appreciable quantities of minerals like calcium, iron and phosphorus. The fruit has been reported to be beneficial in the treatment of ailments like inflammation of the kidneys, etc. (Kadans, 1973).

Mango drink has been marketed since 1964 but its production have not increased as spectacularly as that of carbonated drinks, perhaps because of the fact that only sucking type of mangoes have been used in its manufacture. Grafted varieties of mangoes have a wide variety of charming flavour, pleasing colours, and appealing taste which when blended with sucking type mangoes may yield mango drink with a touch of class and variety. To study this hypothesis, the pulps obtaind from Anwar Ratol, Chaunsa and Langra varieties were blended with the pulp of sucking type mangoes in different proportions and processed into drinks.

REVIEW OF LITERATURE

The chemical composition of many fruit juices is not balanced from organoleptic view point. Tressler and Joslyn (1951) remarked that after dilution and blending together different juices by taste or flavour or more accu-

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rately by actual balancing of certain constituents, delightful beverages with balanced sweetness and flavour could be obtained. Similarly, Woodroof and Phillips (1974) reported that fruit juices could be blended for improvement in colour, flavour, aroma, vitamins, minerals, or to improve consistency. They further reported that by blending little known juices of such fruits as guava, papays, passion fruit and pomegranate with established juices, a wide variety of blends possessing different flavours, colours and consistencies can be developed. Woollen (1969) has reported that blending of fruit juices can be used to extend the production of acceptable fruit juices over the limitation of maturity, characteristics of the variety, etc.

Lopez and Johnson (1971) observed that no blend of apple with grapefruit juice was preferred to apple juice alone and preference was directly related to the amount of apple juice in any blend.

MATERIALS AND METHODS

The pulp samples of three grafted varieties namely Langra, and Chaunsa Anwar Ratol were selected for blending with the pulp of sucking type mangoes.

A – *Processing of Mango Pulp*

Pulp extraction and canning : Pulp was extracted from the fruit of different mango varieties by passing the prepared fruit of each variety through pulper, separately. This pulp was collected in stainless steel mixing tanks and citric acid was added at the rate of 1 per cent. The pulp was filled in No. 2 lacquered cans leaving 1/4 inch headspace and exhausted for 6-8 mintues to a central can temperature of 85 °C. Then the cans were sealed and processed at 212 °F for 5 minutes as described by Karim (1969) and Nanjanaswamy *et al.* (1973). These cans were cooled in running water and stored at ambient temperature for subsequent evaluation, blending and coversion into drinks.

B – *Preparation of Blends and Drinks*

Blends for this study were prepared by mixing the pulp of sucking type mangoes with that of grafted varieties in the following proportions :

100 : 0, 90 : 10, 80 : 20, 70 : 30, 60 : 40, 50 : 50 and 0 : 100

ORGANOLEPTIC PROPERTIES OF MANGO DRINK

The samples containing 100 per cent pulp from sucking type mango or grafted mangoes were considered as control. Drinks were prepared by the addition of water and sugar to mango pulp, so that it contained in each 100 gram of the drink, 14 gram of sugar, 18 gram of pulp and 68 gram of water. The prepared drinks had a Brix value of 16° and contained 0.25 per cent acidity in each case.

C – *Organoleptic Evaluation*

The drinks thus prepared were valuated organoleptically to assess order of superiority on the basis of colour, taste, and flavour, using scoring method described by Krum (1955).

RESULTS AND DISCUSSION

The scores for colour, flavour and taste of different blended drinks as presented in Table 1, showed significant improvement in the colour of drinks when the pulp of grafted varieties was increased in the blend. Among these varieties, Anwar Ratol ranked top most in colour beauty followed by Chaunsa and Langra. Statistical analysis of the data indicated highly significant effect of blending.

The data pertaining to the taste of blended drinks revealed that the blends prepared from Anwar Ratol received highest scores and that higher percentages of pulp from grafted mangoes tended to improve the trait richness in drinks. Statistical analysis of the data showed highly significant effect of blending on the taste of mango drinks.

The incorporation of pulp from all the grafted mango varieties in mango drink improved the flavour of drinks and the best score for flavour was received by the blended drink containing pulp of Anwar Ratol. A closer scrutiny of the results revealed distinct domination of this parameter by Anwar Ratol. This was followed by Chaunsa and Langra, respectively, in order of preference.

The blending of pulp from grafted mango varieties improved the organoleptic qualities of mango drinks particularly Anwar Ratol variety which yielded drinks with beautiful colour, refreshing taste, rich consistency and charming flavour. This improvement in drinks could be due to the balancing effect of blending quality parameters as reported by Tressler and Joslyn (1961) and Woodroof and Phillips (1974). The fact that varieties differ in quality and blending can help to improve acceptance as observed by Woollen (1969), is evident

Table 1. *Organoleptic evaluation for colour flavour and taste of mango drinks prepared by blending, sucking and grafted mango pulps under different treatments*

S. No.	Treatment	Colour			Flavour			Taste		
		Langra	Chaunsa	Anwar Ratol	Langra	Chaunsa	Anwar Ratol	Langra	Chaunsa	Anwar Ratol
Sucking type : Grafted										
1.	90:10	4.0	4.5	5.0	3.0	4.5	4.0	4.0	4.0	4.5
2.	80:20	4.5	5.0	5.0	4.5	4.5	5.0	4.0	5.0	5.0
3.	70:30	5.0	5.5	5.5	4.5	5.0	6.0	5.0	6.0	6.5
4.	60:40	5.5	6.0	6.0	5.0	5.5	6.5	6.0	6.0	7.0
5.	50:50	6.5	6.5	7.0	5 5	6.0	7.0	6.0	6.5	7.0
6.	100:0	4.0	4.5	4.5	3.0	4 0	3.5	4.0	4.0	3.0
7.	0:100	7.5	8.0	9.0	6.0	7.5	9.0	7.0	7.5	8.5
S.E.	Varieties:	0.14				0.21			-	
	Treatments:	0.09				0.32			8.93	

Analysis of variance for colour, flavour and taste

S.O.V.	Colour	Flavour	Taste
Treatments	* *	* *	* *
Varieties	* *	* *	N.S.

* * Highly significant
N S. Non-significant

from the scores for different drinks prepared by blending. It was observed in this study that an increase in content of pulp from grafted mangoes in the base improved the quality of drinks significantly. The observation that pure grafted mango drink ranked highest in consumer appeal reflects the fact that certain fruits or their varities in pure form might be preferred over admixed ones (Lopez and Johnson, 1971).

Exploiting quality packed potential of Anwar Ratol in blends offers one of the best ways to improve mango drinks. However, for offering a variety of drinks, the other two grafted varities would also be considered valuable asset as observed from the organoleptic evaluation data. It may be pointed out that the canned pulp of Langra variety tended to deteriorate in colour, flavour and taste during storage to an extent that such changes could be discerned.

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