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## Sensory evaluation of kiwi pulp yoghurt drink

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### Abstract

In the course of this investigation, our primary objective was to refine the manufacturing process of kiwi pulp yogurt drink and delve into its physico-chemical sensory and characteristics. Commencing with preliminary trials, we blended varying proportions of kiwi pulp—specifically, at 2.5%, 5%, 7.5%, and 10%—with 15% sugar in the yogurt base to determine the most effective experimental treatments. Following this, the experimental kiwi yogurt samples underwent thorough analysis, focusing on physico-chemical qualities such as fat, protein, ash, total solids, moisture, titratable acidity and pH content ranging from 3.22 to 1.62, 3.68 to 3.49, 0.63 to 0.69%, 9.36 to 11.42%, 90.63 to 88.57% and 0.86 to 0.52%, respectively also sensory attributes such as flavor (ranging from 5.50 to 7.50), body and texture (5 to 7.50), and color and appearance (5.25 to 7.25%). The outcomes revealed noteworthy differences among the kiwi yogurt drink samples subjected to different treatments. Specifically, the values for fat, protein, ash, total solids, moisture, titratable acidity and pH also flavour, body and texture, as well as colour and appearance, exhibited significant variations across the spectrum of yogurt drinks with kiwi flavour. Further exploration of physico chemical qualities The chemical composition of kiwi yoghurt drink i.e. fat, protein, moisture, titratable acidity, and pH percentage decreased while ash, total solids are significantly increased with increased levels of kiwi pulp in yoghurt drink. Also for sensory evaluation, encompassing flavour, body and texture, and colour and appearance, indicated that an increase in the levels of kiwi pulp had discernible effects, albeit up to a certain threshold. The culmination of these findings points to a particularly successful outcome with the addition of 5% kiwi pulp. Export promising paths for creating a soft textured product with gentle green hue, coupled with a delightful balance of sweetness and sourness in taste.

**Keywords:** Yoghurt, kiwi pulp, physico- chemical properties, sensory properties

### Introduction

Yoghurt is a staple food in several culture, originating from countries in western Asia and the middle east. The word yoghurt is believed to be derived from the Turkish word “yogurmak” which means to thicken, coagulate or curdle. Yoghurt is the well known and widely acceptable product in the world among other fermented milk product (Coisson *et al.* 2005) <sup>[1]</sup>. Previously, only natural or plain yoghurt was available in the world market but now there has been good demand for fruit yoghurt. The fruit enrich yoghurt add variety to the consumer select. Recently popularity of yoghurt is due to the with sugar fruits (Meenakshi Sundaram and Kumaran 2015) <sup>[2]</sup>. Yoghurt are well known for its nutritional value, therapeutic effect and functional properties. It is excellent source of protein, calcium, potassium vit B2, B6 and B12. It is also effective in curing diarrhoea, dysentery, constipation, lowering blood pressure, cholesterol and cancer (Roy *et al.* 2015) <sup>[4]</sup>. The popularity of yoghurt due to its sensory properly, which are consumed medley around the world and its high nutritional value (Pereira, 2014) <sup>[3]</sup>. Kiwi fruit terribly popular during the past two decades due to its various medicinal properties such as, helps to improve the digestion of protein. (Tyagi *et al.* 2015) <sup>[6]</sup>. The industry must consider providing milk product like yoghurt with natural flavour with fortification. There is more valuable and demand to product like yoghurt with addition of kiwi pulp. There is demand to value addition in milk and milk product due to changes in its life style, healthy and nutritional concern. So, yoghurt drink with addition of kiwi pulp will be worthwhile buying and consuming value added food products of future.

## Materials and Methods

The present investigation on evaluating sensory qualities of kiwi pulp yoghurt drink was carried out in the laboratory of Animal Husbandry and Dairy Science section, College of Agriculture, Nagpur during year 2022-2023. In this trial, for the preparation of Kiwi yoghurt drink following different levels of Kiwi in yoghurt drink were studied.

T<sub>1</sub> - Control (yoghurt without addition of kiwi pulp)

T<sub>2</sub> - yoghurt drink + 2.5% kiwi pulp

T<sub>3</sub> - yoghurt drink + 5% kiwi pulp

T<sub>4</sub> - yoghurt drink + 7.5% kiwi pulp

T<sub>5</sub>-yoghurt drink + 10% kiwi pulp

First kiwi fruit was washed with clean water. The skin was peeled. Slices were made with the help of knife and finally it was converted in to homogenous mass of pulp by putting into mixer.

## Sensory evaluation of yoghurt drink

The quality of yoghurt drink was judged by sensory evaluation in respect of flavour, body and texture and colour and appearance by trained panel of judge (5 members) on 9 point scale Hedonic scale by Arnon and Trout (1964).

## Statistical Analysis

The experiment was laid out in CRD with 4 treatments and 5 replications. The data obtained was analysed statistically according to method described by (Snedecor and Cochran, 1967) [5]

## Results and Discussion

The sensory properties of kiwi pulp yoghurt drink with different treatment combination. The samples were subjected to find out sensory attributes of yoghurt drink such as flavour, body texture and colour and appearance. It indicates that increased in the levels of Kiwi pulp resulted in better flavour, body texture and colour and appearance of yoghurt drink up to a certain limits.

## Sensory analysis of yoghurt drink

Yoghurt drink samples prepared at each treatment were analysed for fat, protein, total solids, moisture, titratable acidity percentage and pH.

## Flavour

**Table 1:** Flavour score of yoghurt drink as affected by different level of Kiwi pulp (score out of 9)

Treatments	Proportions (CM: KP)	Replications				Mean
		I	II	III	IV	
T <sub>1</sub>	100:00	8.0	7.0	8.0	7.0	7.50
T <sub>2</sub>	97.2:2.5	7.0	6.0	5.0	6.0	6.00
T <sub>3</sub>	95:05	8.0	8.0	9.0	8.0	8.25
T <sub>4</sub>	92.5:7.5	7.0	6.0	7.0	7.0	6.75
T <sub>5</sub>	90:10	6.0	5.0	6.0	5.0	5.50
SE (M)±						0.30
CD at 5%						0.91
Results						sig

It is observed that the flavour score of yoghurt drink prepared with addition of Kiwi pulp Kiwi at 0 percent (T<sub>1</sub>), 2.5 percent (T<sub>2</sub>), 5 percent (T<sub>3</sub>), 7.5 percent (T<sub>4</sub>), 10 percent (T<sub>5</sub>) were recorded 7.50, 6.0, 8.25, 6.75 and 5.50 percent, respectively.

## Body texture

**Table 2:** Body texture score of carrot yoghurt drink as affected by different levels of Kiwi pulp (score out of 9)

Treatments	Proportions (CM: KP)	Replications				Mean
		I	II	III	IV	
T <sub>1</sub>	100:00	8.0	7.0	8.0	7.0	7.50
T <sub>2</sub>	97.2:2.5	7.0	6.0	5.0	6.0	6.00
T <sub>3</sub>	95:05	8.0	8.0	9.0	8.0	8.25
T <sub>4</sub>	92.5:7.5	6.0	6.0	7.0	7.0	6.50
T <sub>5</sub>	90:10	6.0	5.0	5.0	5.0	5.25
SE (M)±						0.30
CD at 5%						0.91
Results						sig

It is observed from table 4 that the Body texture of yoghurt drink prepared with addition of Kiwi pulp Kiwi at 0 percent (T<sub>1</sub>), 2.5 percent (T<sub>2</sub>), 5 percent (T<sub>3</sub>), 7.5 percent (T<sub>4</sub>), 10 percent (T<sub>5</sub>) were recorded as and 7.50, 6.00, 8.25, 6.50, 5.25 percent, respectively.

## Colour and appearance

**Table 3:** Score for colour and appearance of yoghurt drink with different levels of Kiwi pulp (Score out of 9)

Treatments	Proportions (CM: KP)	Replications				Mean
		I	II	III	IV	
T <sub>1</sub>	100:00	8.0	7.0	7.0	7.0	7.25
T <sub>2</sub>	97.2:2.5	7.0	6.0	5.0	6.0	6.00
T <sub>3</sub>	95:05	8.0	8.0	9.0	9.0	8.50
T <sub>4</sub>	92.5:7.5	6.0	6.0	7.0	6.0	6.25
T <sub>5</sub>	90:10	6.0	5.0	5.0	5.0	5.25
SE (M)±						0.29
CD at 5%						0.89
Results						sig

It is indicated that increased in the levels of Kiwi pulp resulted in better colour appearance of yoghurt drink up to a certain limits. As significantly highest score (8.5 out of 9) was obtained by yoghurt drink prepared with 5 percent Kiwi pulp (T<sub>3</sub>) was appreciated followed by T<sub>1</sub>, T<sub>2</sub>, T<sub>4</sub> and T<sub>5</sub>. The prepared with 5 parts (8.25) of Kiwi pulp was superior over 0, 2.5, 7.5 and 10 parts levels.

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