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Studies on Sensory Analysis of Goat Milk *Basundi* with *Red Pumpkin* Pulp

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A B S T R A C T

The study was conducted on the topic "Studies on Preparation of Goat Milk *Basundi* with *Red Pumpkin Pulp*." The different levels of *red pumpkin pulp* 2.5, 5 and 7.5 per cent were tried in goat milk *basundi*. The product obtained was subjected for organoleptic evaluation by panel of judges. It was observed that the colour and appearance score for treatment T_0, T_1, T_2 and T_3 was 7.58, 8.60, 8.35 and 7.45, respectively. Flavour score was 7.73, 8.40, 8.35 and 7.55 respectively. Consistency was 7.70, 8.45, 8.30 and 7.35, respectively. Taste score was 7.75, 8.53, 8.30 and 7.60, respectively. It was observed that the overall acceptability score for sensory was 7.69, 8.50, 8.33 and 7.44, respectively for T_0, T_1, T_2 and T_3. It was clear that the level of 2.5 red pumpkin pulp have highest overall acceptability.

Introduction

Goats are important component of livestock industries and play vital role in the social economic structure of economically weak, rural community Goat milk differs from cow or buffalo milk is having better digestibility, alkalinity, buffering capacity and certain therapeutic values in medicines and human nutrition (Haenlein 2004).

The superior digestibility of goat milk, the proper composition of fatty acids and its content of bioactive compounds seem to give properties suitable for treating or preventing certain medical conditions. Goat milk also has higher proportions of polyunsaturated fat acid as well as conjugated linoleic acid. Short and medium chain fatty acids, as well as medium chain triacylglycerols have become established medical treatments for several clinical disorders.

Goat milk is rich in medium chain triglycerides, which is one of the primary reasons that it facilitates improved nutrient absorption and energy production in the body. In addition, the medium chain triglycerides

capric, caproic and caprylic acids, the most abundant forms found in goat milk, have been shown to possess antimicrobial activity (Roy and Vadodaria 2006).

Basundi is traditional, concentrated and sweetened whole milk product having sweetish caramal and pleasant aroma, light to medium brown colour, thick body and creamy consistency with or without soft textured flakes that are uniformly suspended throughout the product.

It contains all the solids of milk in an appropriate concentration plus additional sugar and a dry fruit is consumed directly as a delicious sweet dish. It is most popular in Maharashtra, Gujarat and parts of Karnataka and is mainly prepared at home by the housewives on some special occasions like Festivals, weddings etc. and relished due to its rich caramal, pleasant and nutty flavor and thick consistency (Pagote, 2003).

Among the different vegetables red pumpkin (*Cucurbita moschata*) belongs to family *Cucurbitaceae* is one of the best-known sources of beta- carotene, a powerful antioxidant that gives orange vegetables and fruits their vibrant colour. Red pumpkin is rich sources of vitamins-A, C, E and K.

It is excellent sources of many polyphenolic flavonoid compounds such as alpha, beta-carotenes, cryptoxanthin, lutein and zeaxanthin, carotenes converted into vitamin A inside the human body.

Biologist suggests pumpkins to be highly useful for treating hormonal disorders or adolescent behavior, menopause disorder and intestinal parasite. Hence considering the benefits of fiber in the diet, with respect to its nutritional and medicinal value present study was proposed on "Studies on Preparation of Goat Milk *Basundi* with *Red Pumpkin Pulp*."

Materials and Methods

Treatment combinations

Following treatment combinations were considered for preparation of *basundi* with *red pumpkin pulp*.

T_0= *Basundi* from goat milk (control)

T_1= *Basundi* with 2.5 per cent of *red pumpkin pulp* by weight of goat milk

T_2= *Basundi* with 5.0 per cent of *red pumpkin pulp* by weight of goat milk

T_3= *Basundi* with 7.5 per cent of *red pumpkin pulp* by weight of goat milk.

Experimental Methodology

Fig.1 Flow diagram for preparation of *Basundi* with *Red Pumpkin Pulp*.

Basundi was prepared as per the method of Mukhekar, (2014).

Receiving of goat milk
↓
Filtration
↓
Standardization of milk (4% fat)
↓
Heating at simmering temperature (80-90^0 C)
↓
Stirring-cum-scrapping
↓
Addition of sugar (@ 5% of milk) and *Red pumpkin pulp* as per treatment
↓
Gentle heating till complete sugar dissolved and uniform mixing of *Red Pumpkin Pulp*
↓
Cooling at room temperature and addition of cardamom (1/2 tbsp)
↓
Packaging and storage of *basundi* at refrigeration temperature

Results and Discussion

Sensory evaluation of red pumpkin *basundi*

The experimental *basundi* samples were served to a panel of semi trained judges for sensory evaluation such as, colour and appearance, flavour, body and texture, sweetness and overall acceptability using "9 point hedonic scale". The numerical score given by judges for individual attribute was computed to obtain mean and these means were subjected to statistical analysis. The data was analyzed statistically by using Completely Randomized Design (CRD) as per Panse and Sukhatme (1985). Results obtained are shown in table 1

Flavour

From the results it was observed that *basundi* with 2.5 per cent *red pumpkin pulp* scored highest score (8.40) among all the treatments as well as control.

However, treatment T_1 and T_2 does not differ significantly from each other. As level of addition of *red pumpkin pulp* increased score decreased significantly from T_1 and T_3 treatment as well as control samples also scored. The result is in correlation with Bhutkar *et al.,* (2015).

Taste

From the results it was observed that *basundi* with 2.5 per cent *red pumpkin pulp* scored highest score (8.53) among all treatments as well as control samples. However, treatment T_1 and T_2 does not differ significantly from each other. At higher level of addition of *red pumpkin pulp* i.e. 7.5 per cent the score (7.60) decreased significantly fromT_1 and T_2 treatment as well as control samples. However, taste score T_0 and T_3 treatment are comparable. The results are in agreement with previous research workers, Yadav (2015) and Gite *et al.,* (2017).

Colour and appearance

The mean colour and appearance score for control *basundi* (T_0) and *basundi* with 2.5, 5 and 7.5 per cent *red pumpkin pulp* (T_1 T_2 and T_3) is presented in table 1. From the results it was observed that *basundi* with 2.5 per cent *red pumpkin pulp* scored highest score (8.60) among all treatments as well as control.

However, treatment T_1 and T_2 does not differ significantly from each other. At higher level of addition of *red pumpkin pulp* i.e. 7.5 per cent the score (7.45) decreased significantly from T_1 and T_2 treatment as well as control samples. However, colour and appearance score T_0 and T_3 treatment are comparable. The results are in agreement with Bhutkar *et al.,* (2015).

Consistency

From the result it was observed that *basundi* with 2.5 per cent *red pumpkin pulp* scored highest score (8.45) among all treatments as well as control. However, treatment T_1 and T_2 does not differ significantly from each other.

At higher level of addition of *red pumpkin pulp* i.e. 7.5 per cent the score (7.35) decreased significantly from T_1 and T_2 treatment as well as control samples.

However, T_0 and T_3 treatment are significantly comparable to each other results are in agreement with Bhutkar *et al.,* (2015).

Overall acceptability

The mean overall acceptability score for control *basundi* (T_0) 7.69 and *basundi* with *red pumpkin pulp* T_1, T_2 and T_3 was 8.50, 8.33 and 7.44 respectively. The highest score (8.50) was obtained for treatment T_1 and the lowest score (7.44) was obtained for treatment T_3. The significant differences were observed in between the treatment T_0, T_1, T_2 and T_3.

It was predicted from the sensory score of *basundi* with *red pumpkin pulp* that treatment T_0, T_1, T_2 and T_3 differ significantly for these sensory parameters. The result was in confirmation with Waghmare (2012) and Satav (2014) who reported significance effect of addition of bottle gourd pulp and walnut powder on the overall acceptability of *burfi.*

From present investigation it can be concluded that the red pumpkin pulp can be very well utilized for preparation of palatable, nutritional *basundi*.

The sensory score for colour and appearance as well as flavour was significantly affected towards higher level of addition of *red pumpkin pulp*. While treatment T1 (2.5 per cent) red pumpkin pulp has highest overall acceptability and there is good scope for using red pumpkin pulp in preparation of traditional dairy products.

Table.1 Effect of different levels of *red pumpkin pulp* on overall acceptability of *Basund.*

Treatment	Flavour	Taste	Colour and Appearance	Consistency	Overall Acceptability
T_0	7.73^{c}	7.75^{c}	7.58^{c}	7.70^{c}	7.69^{c}
T_1	8.40^{a}	8.53^{a}	8.60^{a}	8.45^{a}	8.50^{a}
T_2	8.35^{ab}	8.30^{ab}	8.35^{ab}	8.30^{ab}	8.33^{b}
T_3	7.55^{cd}	7.60^{cd}	7.45^{d}	7.35^{d}	7.44^{d}
S.E. ±	0.065	0.097	0.065	0.064	0.042
C.D. at 5%	0.202	0.300	0.202	0.198	0.129

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