

Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com



E-ISSN: 2278-4136 **P-ISSN:** 2349-8234

www.phytojournal.com JPP 2020; Sp 9(5): 524-526 Received: 20-09-2020 Accepted: 24-10-2020

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Effect of blending khajur (*Phoenix dactylifera*) crush on chemical quality of rabri

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Abstract

Present investigation was carried out with the chemical composition of khajur rabri was determined, in respect to fat, protein, total sugar, ash, moisture and total solid. The treatment details were T_1 control sample, T_2 (97 per cent rabri + 3 per cent khajur crush), T_3 (94 per cent rabri + 6 per cent khajur crush), T_4 (91 per cent rabri + 9 per cent khajur crush), and T_5 (88 per cent rabri + 12 per cent khajur crush). During the chemical analysis it was revealed that the fat content of khajur rabri was 19.88, 19.20, 18.09, 17.17 and 16.26. Protein content was 10.01, 9.61, 9.10, 8.93, 8.44. Total sugar content was 17.02, 17.15, 17.28, 17.41, 17.53, Ash content of khajur rabri was 3.02, 2.91, 2.73, 2.62, 2.51, moisture content of khajur rabri was 44.18, 43.75, 43.26, 42.88, 42.26, total solids content was 55.82, 56.25, 56.74, 57.12, 57.74, for the treatment T_1 , T_2 , T_3 , T_4 and T_5 respectively. In short fat, protein and Ash were normally decreased while total sugar, moisture and total solid were increased with increase in levels of khajur crush.

Keywords: khajur crush, buffalo milk, blending, rabri, chemical composition

Introduction

The fruits which are popular among the Indians, if added to the milk shake, not only improve the acceptability among average Indian people but also improve its nutritional quality with the addition of essential vitamin and mineral. At the same time, it will give good market to the preserved food product which is ultimately going to help the farming community engaged in fruit production, preservation and also dairy production. Rabri is popular milk product used commonly in north part of India. Shahib *et al.* (2003) reported that fruits (dates) of the date palm (*Phoenix dactylifera* L.) contain a high percentage of carbohydrate (total sugars, 44-88%), fat (0.2-0.5%), 15% salts and minerals, protein (2.3-5.6%), vitamins and a high percentage of dietary fibre (6.4-11.5%).

Material and Methods

Clean Fresh, whole buffalo milk was procured from Livestock Instructional Farm of Department of Animal Husbandry and Dairy science, Dr. PDKV, Akola was standardized at 6% fat and utilized for preparation of rabri blended with khajur crush. Good quality branded khajur (Lion) was purchased from the local market and used for the experimental purpose as per treatment. Uniform quality and brand was maintained for all replication. Approximately the required amount of khajur was cleaned and washed with clean water. The seeds were removed and Pulp was extracted manually from well ripe fruits. The pulp extracted was converted into homogenous mass with the help of mixer. Clean crystalline cane sugar was purchased from local market and used @) 6% by weight of milk.

Treatment detail

 T_1 control sample, T_2 (97 per cent rabri + 3 per cent khajur crush), T_3 (94 per cent rabri + 6 per cent khajur crush), T_4 (91 per cent rabri + 9 per cent khajur crush), and T_5 (88 per cent rabri + 12 per cent khajur crush) with five replications.

Preparation of rabri

For preparation of rabri method prescribed by De (2015)^[3], Gayen and Pal (1991)^[6] and Singh *et al.*, 2014^[12] was followed with certain modifications in the process as Gaikwad (2014) used for preparation of custard apple pulp blended rabri.

Chemical composition of khajur rabri

Khajur rabri was subjected to chemical analysis for fat, protein, lactose, ash, moisture and Total solid. The results obtained were furnished under the table 1.

Fat content of khajur rabri

It was observed from the data in table 1 that the mean value of fat per cent of khajur crush rabri was statistically significant. It indicate that fat content of khajur crush rabri was affected due to addition of khajur crush. In all above treatment significant difference was noted due to addition of khajur crush which lowering fat contain of khajur rabri. These might be increase in rate of addition of khajur crush which contain less fat. Thaware (2016) ^[14] recorded that fat content was decreased due to addition of custard apple rabri from 19.98 to 16.05 per cent. Gaikwad (2015) ^[5], Mete *et al.* (2017) ^[11], Surve (2017) ^[13] also reported that fat content was decreased in milk shake, burfi and basundi due to addition of dates. These results were in agreement with present results.

Protein content of rabri

The data from the table 1 it was revealed that, the protein content of khajur rabri of different treatments varied from 10.01 to 8.44 per cent. The mea. Protein content of treatment T₁, T₂, T₃, T₄ and T₅ was10.01, 9.61, 9.10, 8.93 and 8.44 per cent respectively Treatment T_1 (10.01) per cent was significantly superior over the treatments T_3 , T_4 and T_5 and the treatment T_2 was at par with T_1 . The treatment was statistically significant over the treatment T₅. It was observed that as the proportion of khajur pulp in the blend increase there was decreased in the protein content in rabri. This might be due to less protein content in khajur pulp as compared to rabri. Thaware (2016)^[14] recorded that protein content in rabri blended was decreased due to addition of custard apple pulp from 10.00 to 8.50 per cent. Gaikwad (2015)^[5], Mete et al. (2017)^[11], Surve (2017)^[13] also reported that protein content was decreased in milk shake, burfi and basundi due to addition of dates.

Total sugar content of khajur rabri

It observed from table 1 that the mean total sugar of khajur rabri for treatment T_1 , T_2 , T_3 , T_4 and T_5 was 17.02, 17.15, 17.28, 17.41 and 17.53 per cent respectively. The total sugar content in custard apple rabri was varied from 17.02 to 17.53 per cent significant difference where observed between treatments for total sugar contain of rabri. It was observed that the total sugar of khajur rabri was increasing with increasing the level of khajur crush in the rabri. Gaikwad (2015)^[5], Mete *et al.* (2017)^[11], Surve (2017)^[13] also reported that protein content was increased in milk shake, burfi and basundi due to addition of dates.

Ash content of khajur rabri

The ash content in khajur rabri ranged from 3.02 to 2.51 per cent. The ash content of khajur rabri of treatment T1, T2, T3, T4 and T₅ were 3.02, 2.91, 2.73, 2.62 and 2.51 per cent respectively. The ash content of treatment T_1 was highest than rest of the treatments. The treatment T_1 , T_2 , T_3 and T_4 was significantly at par. But T₁ and T₂ treatments was statistically significant over T₅ treatment. Lowest ash content was found in treatment T_5 (2.51). From the above results it was observed that ash content of khajur rabri decreased with increase in proportion of khajur crush in the rabri because ash content in khajur pulp is lower. Thaware (2016) ^[14] recorded that ash content in rabri was decreased due to addition of custard apple from 3.01 to 2.50 per cent. Gaikwad (2015) ^[5], Mete et al. (2017)^[11], Surve (2017)^[13] also reported that protein content was decreased in milk shake, burfi and basundi due to addition of dates.

 Table 1: Effect on composition of Rabri prepared from buffalo milk blended with khajur crush (%)

| Treatments (Part of control Rabri : parts of khajur crush) | Mean values of five replications in per cent | | | | | |
|---|--|---------|-------------|---------|----------|--------------|
| | Fat | Protein | Total sugar | Ash | Moisture | Total solids |
| T ₁ (100) | 19.88 | 10.01 | 17.02 | 3.02 | 44.18 | 55.82 |
| T ₂ (97:03) | 19.20 | 9.61 | 17.15 | 2.91 | 43.75 | 56.25 |
| T ₃ (94:06) | 18.09 | 9.10 | 17.28 | 2.73 | 43.26 | 56.74 |
| T4(91:09) | 17.17 | 8.93 | 17.41 | 2.62 | 42.88 | 57.12 |
| T ₅ (88:12) | 16.26 | 8.44 | 17.53 | 2.51 | 42.26 | 57.74 |
| 'F' test | Sig | Sig | Sig | Sig | Sig | Sig |
| SE. <u>+</u> | 0.1528 | 0.0851 | 0.03612 | 0.02054 | 0.05451 | 0.05451 |
| C.D.(P=0.05) | 0.4509 | 0.2512 | 0.1065 | 0.06060 | 0.1608 | 0.1608 |

Moisture content of khajur rabri

The moisture content of khajur rabri ranged from 44.18 to 42.26 per cent. The total solids content of treatment T_1 , T_2 , T_3 , T_4 and T_5 were 44.18, 43.75, 43.26, 42.88 and 42.26 per cent respectively. The moiture content of khajur rabri was highest in T_1 (44.18%) and lowest in T_5 (42.26%). Treatment T_5 (42.26) was significantly superior over the treatments T_1 , T_2 , T_3 and T_4 . The treatment T_3 (43.26) was statistically significant over the treatment T_1 and T_2 . There was increase in moisture content of khajur rabri with increase in level of khajur crush in the blend and addition of cane sugar. Pawar (2003), Jadhav (2002) ^[10], Thaware (2016) ^[14] also noted that in rabri moisture content decrease due to addition of various fruit pulp.

Total solids of khajur rabri

The total solids content of khajur rabri ranged from 55.82 to 57.74 per cent. The total solids content of treatment T_1 , T_2 , T_3 , T_4 and T_5 were 55.82, 56.25, 56.74, 57.12 and 57.74 per cent respectively. The total solids content of khajur rabri was

highest in T₅ (57.74%) and lowest in T₁ (55.82%). Treatment T₅ (57.74) was significantly superior over the treatments T₁, T₂, T₃ and T₄.The treatment T₃ (56.74) was statistically significant over the treatment T₁ and T₂. There was increase in total solids content of khajur rabri with increase in level of khajur crush in the blend and addition of cane sugar. Thaware (2016) ^[14] recorded that total solid content in rabri was increased due to addition of custard apple pulp from 55.82 to 57.75 per cent. Gaikwad (2015) ^[5], Mete *et al.* (2017) ^[11], Surve (2017) ^[13] also reported that protein content was increased in milk shake, burfi and basundi due to addition of dates. These results were in agreement with present results.

Conclusion

On the basis of data obtained in the present investigation it is concluded that fat, protein, and ash contain was decreases with increase in rate of addition of khajur pulp and vice versa, while total solid and lactose increase with increase in rate of addition of khajur pulp.

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