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Study on Preparation Procedure and Standardization of Recipe of Tikhur Burfi blended with Cashew Nut Kernel

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A B S T R A C T

An investigation was conducted at Shaheed Gundadhoor College of Agriculture and Research Station, Kumhrawand, Jagdalpur, Bastar, Chhattisgarh in Horticultural laboratory under AICRP on Tuber Crops. The experiment was undertaken during 2016 and 2017. The experiment was laid out in Completely Randomized Design in which 11 treatments tested in three replications for identification of best recipe for preparation of blended tikhur Burfi. Tikhur Burfi was prepared in Horticulture laboratory for evaluation of best recipe among 11 different treatments. The different recipe combination of tikhur starch, cashew nut kernel sugar and water in 11 treatments were taken to standardize the recipe. The results clearly indicated that the highest score was also awarded to recipe T₁₀ for sweetness. Highest score of 8.31 was awarded by panel of 11 judges after organoleptic taste of tikhur Burfi to treatment T₁₀=50 parts tikhur powder by weight+50 parts cashew nut kernel. The hedonic scale rating of treatment T₁₀ was awarded liked very much (LVM) and liked slightly (LS) after 2 days interval of storage by Judges. The highest score was awarded to treatment T₁₀ for its, flavour, fibrousness sweetness, texture and moisture content and similarly T₉ also recorded. Highest score was also awarded to treatment T₁₀ for overall acceptability just after preparation and after 14 days storage by panel of judges. On the basis of above findings it can be concluded that the treatment or recipe combination T₁₀=50 parts tikhur powder by weight+ 50 parts cashew nut kernel was best for the preparation of blended tikhur Burfi.

Keywords
Tikhur, Curcuma angustifolia Roxb., Tikhur barfi, Organoleptic score, Hedonic scale rating, Recipe

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Introduction

Tikhur (Curcuma angustifolia; family Zingiberaceae) is a rhizomatous herb also known as white turmeric or East Indian Arrowroot. Its cultivation has now been undertaken by the farmers of Bastar on a large area. Tikhur is also found in central province, Bihar, Maharashtra and Southern part of India. In undivided Madhya Pradesh, it is widely distributed in Bastar, Balaghat, Chhindwara, Surguja, Bilaspur, Raipur and Mandla districts (Kirtikar and Basu, 1918). Two types of tikhur are found in the Bastar division; one with
creamy white flowers and another having light pink coloured flowers (Singh et al., 1999). Tikhur rhizomes are used as appetizer reducing burning sensations and stomach pains, removal of stone from kidney, useful for ulcer patient (Sharma, 2003) and rhizome pulp is used for treatment of headache as well as it gives cooling effect (Nag et al., 2006). The starch of tikhur is used for the preparation of many sweet meals and herbal dishes like Halwa, Barfi, Jalebi etc. It is used specially during fast (Vrata, Upwas). Farmers also prepare herbal drink “Sarbat” through tikhur starch during summer due to its cooling effect (Singh and Palta, 2004). Better post harvest management and diversification for production of value added products is one of the dependable methods to make tikhur crop lucrative to both farmers and entrepreneurs. In future the tikhur Burfi may be best value added herbal sweets of tikhur in all over India and it may be famous sweets of Bastar. Looking to the importance of the crop for people of the Chhattisgarh an investigation on the preparation procedure and standardization of recipe for Tikhur Barfi and to find out the best recipe for preparation of value added product tikhur Barfi from starch of tikhur was undertaken.

**Experimental methods**

The investigation was conducted at IGKV, Shaheed Gundadhoor College of Agriculture and Research Station, Kumhrawand, Jagdalpur, Bastar, Chhattisgarh in Horticultural laboratory. The experiment was undertaken during 2016 and 2017. The experiment was laid out in Completely Random Design in which 11 treatments tested in three replications for identification of best recipe for preparation of tikhur Burfi. Best starch quality genotype IGDMT-10-1 of tikhur was selected as an experimental material and starch of above genotype used for preparation of tikhur Burfi. Tikhur Burfi was prepared in Horticulture laboratory for evaluation of best recipe among 16 different treatments. The different recipe combination of tikhur starch, sugar and water in 11 treatments were taken to standardize the recipe. Tikhur starch powder and cashew nut powder were weighed as per treatment and quantities of sugar and water was added as per standardized method of tikhur burfi preparation. The level of burner was always kept on medium flame and continuously stirred through spoon. After 3-4 minutes of starch, cashew kernel, sugar and water started coagulation. During this period total soluble solids were measured by Digital Refractometer. Then after 5-6 minutes the solution was totally coagulated and put in plate for setting down to give shape of burfi. After setting and cooling of coagulated material, prepared the pieces through knife to give shape of tikhur burfi and it was now ready for taking different observations and Organoleptic Test. The tikhur Barfi were evaluated in three replications by a panel of 11 judges consisting of staff and students of SG College of Agriculture and Research Station, Kumhrawand, Jagdalpur, Chhattisgarh for organoleptic test. Scoring was done for various characters based on 10 marks headonic scale rating (Amerine et al., 1965). The values given by each of the 11 judges were then averaged for statistical analysis.

**Experimental findings and analysis**

The findings of the present study as well as relevant discussion have been presented under following heads: Estimation of total soluble solids (TSS), final weight of prepared product (Burfi), storability of Burfi and weight loss during storage of tikhur Barfi (2016-17 and 2017-18): The tikhur Barfi prepared through different recipes was subjected to analysis for determination of total soluble solids (%), final weight of prepared product (g), storability of tikhur Barfi (days) and weight loss during storage (%) and standardization of recipe for
preparation of tikhur Barfi. The results obtained are presented in the Table 1.

**Final weight of prepared product (kg)**

Final weight of prepared product was recorded highest in treatment $T_0$ (1.871kg) followed by $T_1$ (1.827kg). The lowest weight of prepared product was recorded in treatment $T_{10}$ (1.435kg) in the year 2016-17. Final weight of prepared product was recorded maximum in treatment $T_0$ (1823.8kg) followed by $T_1$ (1782.6 g) whereas, lowest was observed in treatment $T_{10}$ (1411.9 g) during the year 2017-18. As the tikhur content decreased and cashew nut content increased in the final product, the moisture content decreased in the final product highest moisture content with addition of tikhur powder was due to higher level of starch, which facilitated the retention of more moisture inside the dough during burfi preparation.

**Storability of tikhur Burfi (days)**

Maximum storability of tikhur *Burfi* was observed in treatment $T_{10}$ and $T_9$, during 2016-17 and 2017-18 *i.e.* 10 days and 9.4 days respectively, which were significantly superior to other treatments. The minimum storability was observed in treatment $T_0$ during the year 2016-17 and 2017-18 *i.e.* 4 days and 4.5 days respectively.

**Weight loss during storage (%)**

Maximum weight loss per cent of tikhur *Burfi* was observed in treatment $T_0$ during 2016-17 and 2017-18 *i.e.* 18.96 and 18.88% respectively, which were significantly superior to other treatments. The minimum weight loss per cent was observed in treatment $T_{10}$ during the year 2016-17 and 2017-18 (5.17 and 5.31%) respectively.

| Treatments | 2016-17 | 2017-18 |
|------------|---------|---------|
|            | Final product weight | Storability (days) | Weight loss during storage (%) | Treatments | Final product weight | Storability (days) | Weight loss during storage (%) |
| $T_0$      | 1.871   | 4       | 18.96    | $T_0$      | 1823.8   | 4.5     | 18.88    |
| $T_1$      | 1.827   | 5       | 18.64    | $T_1$      | 1782.6   | 5.8     | 18.72    |
| $T_2$      | 1.783   | 6       | 5.88     | $T_2$      | 1741.4   | 6.2     | 6.62     |
| $T_3$      | 1.740   | 6       | 13.04    | $T_3$      | 1700.2   | 6.5     | 12.78    |
| $T_4$      | 1.696   | 7       | 13.23    | $T_4$      | 1659     | 7.2     | 13.12    |
| $T_5$      | 1.653   | 7       | 12.50    | $T_5$      | 1617.8   | 7.4     | 12.42    |
| $T_6$      | 1.609   | 8       | 10.60    | $T_6$      | 1576     | 7.8     | 11.31    |
| $T_7$      | 1.566   | 8       | 9.78     | $T_7$      | 1535.4   | 7.6     | 9.82     |
| $T_8$      | 1.522   | 9       | 13.33    | $T_8$      | 1494.2   | 8.2     | 13.15    |
| $T_9$      | 1.479   | 10      | 7.40     | $T_9$      | 1458.5   | 9.3     | 7.52     |
| $T_{10}$   | 1.435   | 10      | 5.17     | $T_{10}$   | 1411.9   | 9.4     | 5.31     |
Table 2: Effect of different levels of tikhur and cashew nut kernels on organoleptic score of tikhu r burfi (2016-17)

| Treatment | appearances | flavor | fibrousness | sweetness | texture | moisture | overall acceptability |
|-----------|-------------|--------|-------------|-----------|---------|----------|-----------------------|
| T₀-100 parts Tikhur powder by weight +0 parts Cashew nut kernel | 8.30 | 7.82 | 7.67 | 7.57 | 8.47 | 5.32 | 7.53 |
| T₁-95 parts Tikhur powder by weight +5 parts Cashew nut kernel | 5.17 | 4.88 | 3.83 | 5.26 | 4.23 | 3.92 | 4.55 |
| T₂-90 parts Tikhur powder by weight +10 parts Cashew nut kernel | 4.43 | 4.92 | 4.28 | 5.23 | 4.92 | 3.90 | 4.61 |
| T₃-85 parts Tikhur powder by weight +15 parts Cashew nut kernel | 6.02 | 4.90 | 5.47 | 6.28 | 5.28 | 4.92 | 5.48 |
| T₄-80 parts Tikhur powder by weight +20 parts Cashew nut kernel | 5.88 | 5.94 | 5.57 | 6.62 | 6.02 | 6.02 | 6.01 |
| T₅-75 parts Tikhur powder by weight +25 parts Cashew nut kernel | 6.10 | 5.91 | 6.28 | 7.28 | 6.59 | 6.38 | 6.42 |
| T₆-70 parts Tikhur powder by weight +30 parts Cashew nut kernel | 6.23 | 7.04 | 6.92 | 7.58 | 6.92 | 6.32 | 6.84 |
| T₇-65 parts Tikhur powder by weight +35 parts Cashew nut kernel | 6.98 | 7.08 | 6.98 | 7.54 | 7.52 | 6.94 | 7.17 |
| T₈-60 parts Tikhur powder by weight +40 parts Cashew nut kernel | 7.48 | 7.02 | 8.12 | 8.24 | 8.02 | 6.92 | 7.63 |
| T₉-55 parts Tikhur powder by weight +45 parts Cashew nut kernel | 8.62 | 7.98 | 8.24 | 8.56 | 8.32 | 8.08 | 8.30 |
| T₁₀-50 parts Tikhur powder by weight +50 parts Cashew nut kernel | 8.19 | 8.02 | 8.57 | 9.28 | 8.68 | 8.62 | 8.56 |
| SEM | 0.19 | 0.17 | 0.03 | 0.12 | 0.04 | 0.04 | 0.04 |
| CD | 0.55 | 0.50 | 0.09 | 0.04 | 0.11 | 0.11 | 0.12 |
| CV | 4.80 | 4.55 | 0.81 | 0.99 | 0.94 | 1.03 | 1.03 |
Table 3 Effect of different levels of tikhur and cashew nut kernel on organoleptic score of tikhur burfi (2017-18)

| Treatment |Appearances | Flavor | Fibrousness | Sweetness | Texture | Moisture | Overall Acceptability |
|-----------|-------------|--------|-------------|-----------|---------|----------|-----------------------|
| T₀-100 parts Tikhur powder by weight +0 parts Cashew nut kernel | 8.60 | 8.00 | 7.67 | 7.67 | 8.67 | 5.5 | 7.68 |
| T₁-95 parts Tikhur powder by weight +5 parts Cashew nut kernel | 5.27 | 5.00 | 3.67 | 5.33 | 4.33 | 4.0 | 4.60 |
| T₂-90 parts Tikhur powder by weight +10 parts Cashew nut kernel | 4.73 | 5.03 | 4.31 | 5.33 | 5.00 | 4.0 | 4.73 |
| T₃-85 parts Tikhur powder by weight +15 parts Cashew nut kernel | 6.13 | 5.00 | 5.67 | 6.33 | 5.33 | 5.0 | 5.58 |
| T₄-80 parts Tikhur powder by weight +20 parts Cashew nut kernel | 5.93 | 6.00 | 5.67 | 6.67 | 6.00 | 6.0 | 6.05 |
| T₅-75 parts Tikhur powder by weight +25 parts Cashew nut kernel | 6.40 | 6.00 | 6.33 | 7.33 | 6.67 | 6.5 | 6.54 |
| T₆-70 parts Tikhur powder by weight +30 parts Cashew nut kernel | 6.33 | 7.00 | 7.00 | 7.67 | 7.00 | 6.5 | 6.92 |
| T₇-65 parts Tikhur powder by weight +35 parts Cashew nut kernel | 7.13 | 7.00 | 7.00 | 7.67 | 7.67 | 7.0 | 7.25 |
| T₈-60 parts Tikhur powder by weight +40 parts Cashew nut kernel | 7.93 | 7.00 | 8.33 | 8.33 | 8.33 | 7.0 | 7.82 |
| T₉-55 parts Tikhur powder by weight +45 parts Cashew nut kernel | 8.93 | 8.00 | 8.31 | 8.67 | 8.67 | 8.0 | 8.43 |
| T₁₀-50 parts Tikhur powder by weight +50 parts Cashew nut kernel | 8.40 | 8.00 | 8.67 | 9.33 | 9.00 | 8.5 | 8.65 |
| SEM | 0.28 | 0.19 | 0.01 | 0.03 | 0.03 | 0.02 | 0.06 |
| CD | 0.82 | 0.55 | 0.04 | 0.10 | 0.09 | 0.06 | 0.16 |
| CV | 7.04 | 4.96 | 0.33 | 0.78 | 0.74 | 0.61 | 1.41 |
Organoleptic scores were judged by panel of 11 judges and given in Table 3. Scores for Appearance, Flavor, Fibrousness, Sweetness, Texture, Moisture and Overall acceptability in different treatment combinations were in the range of 4.73-8.93, 5.00-8.00, 3.67-8.67, 5.33-9.33, 4.33-9.00, 4-8.50 and 4.60-8.65, respectively.

The highest score of (8.93) was awarded to treatment T_9 for its appearance whereas, lowest was (4.73) under T_2.

In case of flavor, the highest organoleptic score of (8.00) was observed under treatment T_10 for its flavour and lowest (5.00) for T_1. The treatment T_10 had the highest organoleptic score (8.67) for its fibrousness and lowest was (3.67) for treatment T_1.

For sweetness of tikhur burfi, treatment T_10 recorded the highest score of (9.33) and lowest (5.33) under treatment T_2. Highest score of (9.00) was awarded to treatment T_1 for its texture and lowest score was (4.33) to treatment T_1. Highest score of (8.50) was awarded to treatment T_8 for its moisture content and lowest score was (4.00) to treatment T_2.

The overall acceptability recorded the highest score of (8.65) under T_10 recipe i.e. 50 parts Tikhur powder by weight +50 parts Cashew nut kernel while lowest score (4.60) was recorded under the treatment T_1 -95 parts Tikhur powder by weight +5 parts Cashew nut kernel. The former treatment (T_10) was liked very much through hedonic scale rating as compared to other treatment recipes.

Summary and conclusion is as follows:

Final weight of prepared product was recorded highest in treatment T0 and lowest was in T10. Weight loss during storage was maximum in treatment T_0 and minimum in...
treatment T₁₀. Under organoleptic test of tikhur Burfi the highest or organoleptic score was awarded to recipe T₁₀ for its flavour fibrousness sweetness, texture and moisture. The hedonic scale rating of treatment T₁₀ was awarded liked very much (LE) by panel of 11 Judges. The treatment T₁₀ or recipe combination T₁₀ = 50 parts of tikhur starch by weight+ 50 parts cashew nut kernel has been standardized for preparation of tikhur Burfi. Treatment T₁₀ awarded highest organoleptic score by panel of 11 Judges and liked extremely by judges through over all organoleptic rating.

References

Amerine, M.A., Pangborn, R.M. and Roessler, E.B. (1965). Principles of sensory evaluation of food. Academic press, London, United Kingdom.

Anonymous (2005). Chhattisgarh Rajya Vanopaj, Bajar Sarvekshan Prativedan, CGMFPFED. pp 16, 17 & 42.

Kirtikar, K.R. and Basu, B.D. (1918). Pankaj Oudhia’s Notes on Aegle marmelos (L.) Corrêa. Indian Medicine Plant, 4 (2): 239–241.

Sharma, R. (2003). Medicinal plants of India: An Encyclopedia. Daya Publishing House, Delhi. pp 75.

Singh, J., Sharma, R.B. and Singh, R. (1999). Improved cultural practices for cultivation of medicinal herb - Tikhur. In Health care and development of medicinal plants. pp. 319-324.

Singh, R. and Palta, A. (2004). Foods and beverages consumed by Abujhmarias- A primitive tribe of Bastar in Chhattisgarh. Tribal Health Bulletin. Regional Medical Research Centre for Tribes (ICMR), Nagpur Road, Jabalpur (M.P.). 10 (1&2): 33-40.

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