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Research Article

Preparation and Sensory Evaluation of Finger Millet Khakhra

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Abstract

Khakhra is a crispy version of roti, it is usually a cracker that is handmade and roasted to provide crunchiness. It is also a healthy snack which is a common recipe in the Rajasthani and Gujarati cuisines. Khakhra when prepared by using finger millet as a major ingredient provides a much more nutrition in terms of protein, carbohydrates, minerals and dietary fibers in comparison with the traditional khakhra that is made of wheat flour. Since over consumption of wheat or its products are known for improper health condition such as celiac disorder may overcome by substituting it with ragi or finger millet which is rich in several minerals such as calcium and iron. Finally obtained product is kept for sensory evaluation by using nine point hedonic scale.

Keywords: Finger Millet flour; Sensory Evaluation; Traditional Recipe; Nutritional value

1. Introduction

The food is part of man's culture and is filled with different meanings and symbolism for different age groups. The food should be nutritious, attractive in appearance and must satisfy customer demand in terms of quality to be eaten and enjoyed. Finger millets are the valued product for humankind. Finger millets contain protein (5-8%), carbohydrates (65-67%), dietary fiber and minerals (2.5-3.5%) and it has highest calcium content among all the cereals. In the recent years, there is growing regarding the nutritive value of food and to nourish the ever-increasing population, however the inadequacy of essential nutrients can be improved through the fortifications and enrichment. A balance of nutrients may be obtained by including cereals, pulses, milk and milk products. Such diet involves carbohydrates, proteins, minerals, dietary fiber. The modified khakhra is a nutritive enhanced product, whose sensory characteristics are studied further.

2. Materials and Methods

For preparation process of finger millet khakhra, following mixture of the finger millet flour and the wheat flour is

considered as the major ingredient,

T_0 100% wheat flour by weight (control)

T_1 10% finger millet flour+90% wheat flour by weight

T_2 15% finger millet flour+85% wheat flour by weight

T_3 20% finger millet flour+80% wheat flour by weight.

2.1 Processing of finger millet powder

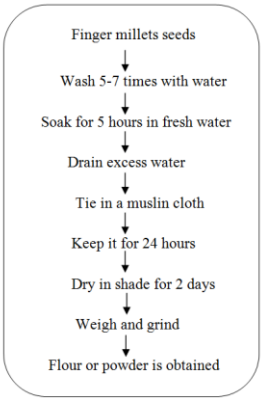

Figure 1: Processing of finger millet powder.

2.2 Preparation flow diagram for the preparation of finger millet khakhra

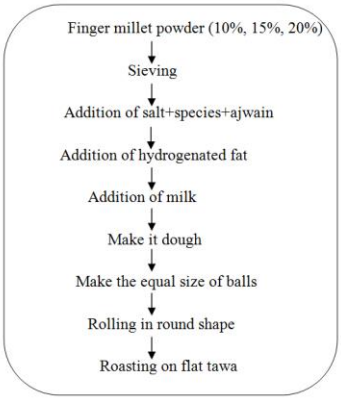

Figure 2: Preparation of finger millet khakhra.

- Khakhra is safer and less prone to microbial spoilage.
- It has low moisture content in the product.
- Also possess a longer shelf life.

3. Results and Discussion

Finger millet khakhra prepared from different mixtures of wheat flour and finger millet flour is subjected to sensory evaluation and scores are recorded for different parameters are presented in Table1.

Treatments	Color and Appearance	Flavor	Consistency	Mouth feel	Overall Acceptability
T_0	8.02	8.15	8.35	8.01	8.12
T_1	8.2	8.32	8.66	8.23	8.20
T_2	8.12	8.23	8.28	8.12	8.14
T_3	8.10	8.12	7.20	8.01	8.0

Table 1: Sensory evaluation of four fingers millet khakhra.

3.1 Color and appearance

The mean color and appearance score for different treatments of finger millet khakhra are ranged from 8.02 to 8.12. The treatment T_1 (8.12) is found to be significantly superior over the rest of the treatments. It was observed that an increase in the level of finger millet flour in khakhra decreases the score of color and appearance slightly [1-3].

3.2 Flavor

It is observed that the mean score for the flavor of finger millet khakhra for treatments T_0, T_1, T_2 and T_3 are 8.15, 8.32, 8.23, and 8.12 respectively. The treatment T_1 is superior over T_0 and T_2 treatments. It is observed from above findings that 90% of wheat flour mixed with 10% of finger millet flour will give rich flavor to khakhra.

3.3 Consistency

The mean score for the consistency attributes of finger millet khakhra ranges from 7.20 to 8.66. The treatment T_1 (8.66) is significantly superior over the rest of the treatments.

3.4 Mouth feel

The highest mouth feel score is observed for treatment T_1 (8.23) followed by T_2 (8.12),T_0 (8.01) and T_3 (8.0). 10% of finger millet flour mix is most acceptable (T_1).

3.5 Overall acceptability

The mean score for treatment T_0, T_1, T_2 and T_3 are 8.12, 8.20, 8.14 and 8.0 respectively. The treatment T_1 (8.12), T_2 (8.20), and T_0 (8.12) ranked among like very much to like extremely. The treatment T_1 (8.12) is most accepted by the judges. So use of 10% of finger millet flour is more acceptable than the other treatment combinations [4-5].

4. Conclusion

Addition of finger millet flour into traditional khakhra makes is more nutritious and also helps in improving the keeping quality of the end product. The optimum amount of finger millet flour that can be used in the process of preparation of khakhra is up to 10%.

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