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## Sensory analysis of newly developed chips prepared from wheat flour and dates powder

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### Abstract

This study examines the sensory characteristics of recently created chips made from a mixture of dates powder and wheat flour. The purpose of the study is to determine whether it is feasible to use dates powder as an ingredient in snack food products, with an emphasis on improving the product's sensory appeal and nutritional content. A sensory study was done to evaluate the flavour, texture, scent, and general acceptance of the chips. The findings show that adding dates powder to the chips improves their sensory qualities and gives them a distinct flavour profile and appealing texture. The development of novel snack foods with enhanced nutritional value and consumer acceptance is aided by this research.

**Keywords:** Sensory analysis, chips, wheat flour, dates powder, snack food, flavor, texture, aroma, acceptability

### 1. Introduction

Nowadays, innovative snacks made with substitute components and raw materials are what really propel the growth of the snack food sector. A plentiful grain resource that can be used Proteins (Around 10–12%), water (About 14%), and starch (About 70–75%) make up the majority of wheat flour. In starch, the usual concentrations of amylose and amylopectin are 25–28% and 72–75%, respectively (Goesaert *et al.*, 2005; Yuksel & Kayacier, 2016) <sup>[2, 7]</sup>. To make chips is wheat (Xu *et al.*, 2022) <sup>[6]</sup>. The snack food industry is constantly evolving, with consumers seeking healthier and more diverse options (Guiné *et al.*, 2020) <sup>[3]</sup>. In recent years, there has been growing interest in incorporating natural and nutritious ingredients into snack formulations to meet consumer demand for healthier alternatives. Dates are a rich source of vitamins, minerals, and dietary fiber, making them an attractive ingredient for use in food products (Ayad *et al.*, 2020; Tewari *et al.*, 2021) <sup>[1, 5]</sup>. Additionally, dates are known for their natural sweetness and distinct flavor profile, which can enhance the sensory appeal of snack foods (Mousavi *et al.*, 2014) <sup>[4]</sup>. This research aims to explore the sensory attributes of chips prepared from a blend of wheat flour and dates powder, with the goal of developing a nutritious and flavorful snack option.

### 2. Materials and Methods

#### 2.1 Ingredients

- Wheat flour
- Dates powder
- Oil for frying
- Salt and spices (Optional)

#### 2.2 Preparation of Chips

- Wheat flour and dates powder were blended in different ratios to form the chip batter.
- The batter was seasoned with salt and spices as desired.
- The batter was then shaped into thin discs or strips and dried through hot air oven until golden brown and crispy.
- The chips were allowed to cool and then subjected to sensory evaluation.

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Treatment combinations

Sl. No.	Wheat Flour	Dates powder
T <sub>1</sub>	80	20
T <sub>2</sub>	90	10

### 2.3 Sensory Evaluation

1. Trained panelists or consumer participants were recruited to evaluate the chips.
2. The sensory attributes assessed included taste, aroma, texture, color, and overall acceptability.
3. Participants used a structured scale or questionnaire to rate each attribute based on predefined criteria.
4. Statistical analysis, such as analysis of variance (ANOVA) or t-tests, was conducted to compare sensory scores between different chip formulations.

### 3. Results and Discussion

**Table 1:** Mean value of T<sub>1</sub> and T<sub>2</sub>

Treatments	Color	Flavour	Taste	Texture	Overall acceptability
T <sub>1</sub>	8.7	8.3	7.5	7.9	8.1
T <sub>2</sub>	7.8	7.3	7.7	7.2	7.5

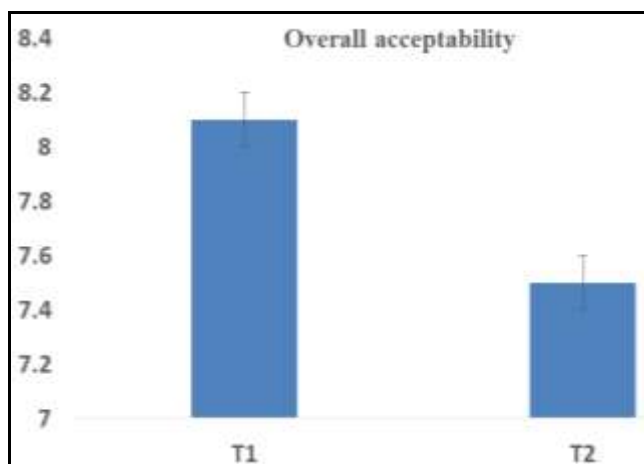
After analysis of color, flavor, taste and texture score it was found that T<sub>1</sub> had 8.7, 8.3, 7.5 and 7.9 respectively and T<sub>2</sub> had 7.8, 7.3, 7.7 and 7.2 respectively. After overall acceptability it was found that T<sub>1</sub> had highest score 8.1 than T<sub>2</sub> score 7.5.

**Table 2:** Descriptive statistics of overall acceptability of T<sub>1</sub> and T<sub>2</sub>

Mean	8.100	7.500
Std. Deviation	0.1000	0.1000
Std. Error of Mean	0.05774	0.05774

**Table 3:** Significance difference between T<sub>1</sub> and T<sub>2</sub>

P value	0.0018
P value summary	**
Significantly different (s 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=7.348, df=4



**Fig 1:** Graphical representation of Overall acceptability

The results of this investigation indicate that adding dates powder to chip recipes can effectively enhance their sensory qualities and nutritious content. The savoury taste of wheat flour is complemented by the natural sweetness and health benefits of dates, creating a satisfying and well-balanced

snack alternative. The sensory study offers insightful information about customer acceptance and preferences for chips produced with powdered dates and wheat flour. To confirm the market potential of these goods, additional study might look into consumer studies, shelf-life studies, and formulation optimisation for chips.

### 4. Conclusion

In conclusion, this study shows that utilising dates powder as a useful component in the creation of novel snack foods is feasible. Chips made with a combination of dates powder and wheat flour have a crisp texture, distinct flavour, and higher nutritional value. The sensory investigation verifies that dates powder has a good effect on the chips' overall sensory qualities and consumer acceptability. The food business is moving towards offering a wider variety and healthier snack options thanks to these findings. Following a sensory investigation, it was shown that the T<sub>1</sub> therapy combination had the highest overall acceptance score.

### 5. Acknowledgment

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