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Preparation of Choco Dates Bar

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Abstract: ***We aimed to produce dates bar by using of dates, standard procedure we adopted for preparing the Choco dates bar. However, in this study, product was devoid of any sweet additives, as dates are rich in natural sugar. Various analysis (proximate composition moisture andAsh, color, texture profile and sensory quality evolution) Were performed to evaluate the overallvirtues of dates-based bar to be rich in protein, Fat and carbohydrates with good energy values. TheRadical was observed in bars compared to raw dates. Texture wise, product had high factor- ability, indicating easy to bite and chew nature thus rendering it suitable for elderly people and small children. result of sensory quality evolution indicated dates have evolutes potential to be converted into bars. Result generated in this study suggests date-based bars maybe expected to fulfill the requirement of heart conscious consumers. it is anticipated that the 'CHOCO DATESBAR' attract better marketability at the international level.***

I. INTRODUCTION

The palm date tree, *Phoenix dactylifera* L., belonging to the Arecaceae family, plays a crucial role in the economies and diets of the Middle East and North Africa . Saudi Arabia (SA) stands as the world's second-largest producer of palm dates, contributing nearly 16% to the global date fruit supply, with a cultivation of 450 date palm cultivars . *C*hoco dates bars are a delicious and nutritious snack made with a combination of chocolate and dates. They often provide a natural sweetness from the dates and the rich flavor of chocolate. It's a popular choice for those looking for a healthier alternative to traditional chocolate bars. Choco dates bars represent a delightful fusion of natural sweetness and indulgent flavor. Crafted by combining the wholesome richness of dates with the luscious taste of chocolate, these bars offer a unique and satisfying treat. In response to the growing demand for healthier snack options, Choco dates bars have emerged as a popular choice, providing a delectable alternative to traditional chocolate bars. This introduction aims to explore the appeal and characteristics of Choco dates bars, highlighting their potential to cater to a discerning market seeking both taste and nutritional benefits.

This paper delves into the nutritional composition and sensory appeal of Choco dates bars, a burgeoning category within the snack industry. Fusing the natural sweetness of dates with the decadence of chocolate, these bars have gained popularity as a potential healthier alternative to conventional chocolate bars. The study aims to analyze the nutritional benefits, including fiber content and antioxidants derived from dates, and assess how these factors contribute to the perceived healthiness of Choco dates bars. Additionally, sensory evaluations will be conducted to understand the taste, texture, and overall palatability, investigating the factors that contribute to consumer preference. The research outcomes aim to provide insights into the market potential, consumer acceptance, and the positioning of Choco dates bars in the context of contemporary health-conscious lifestyles.

II. MATERIALS AND METHODOLOGY

1) *Raw Materials:* This section typically outlines the material used and the procedures followed during the study. It describes the equipment, instruments, reagents and samples used, also the experiments used to collect and analyze data. New product development work was carried out at the Department of Food Technology, Ballarpur Institute of Technology, Bamni, Ballarpur.

Table 1: Material Required for New Product Development

Material Required	Collection of Raw Material
Dates	Super market
Dark compound	Super market
Oats	Super market
Almonds	Super market
Choco Powder	Super market
Butter	Super market

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Essence	Super market

2) *Equipments:-* The below table shows the equipments required for the new product development

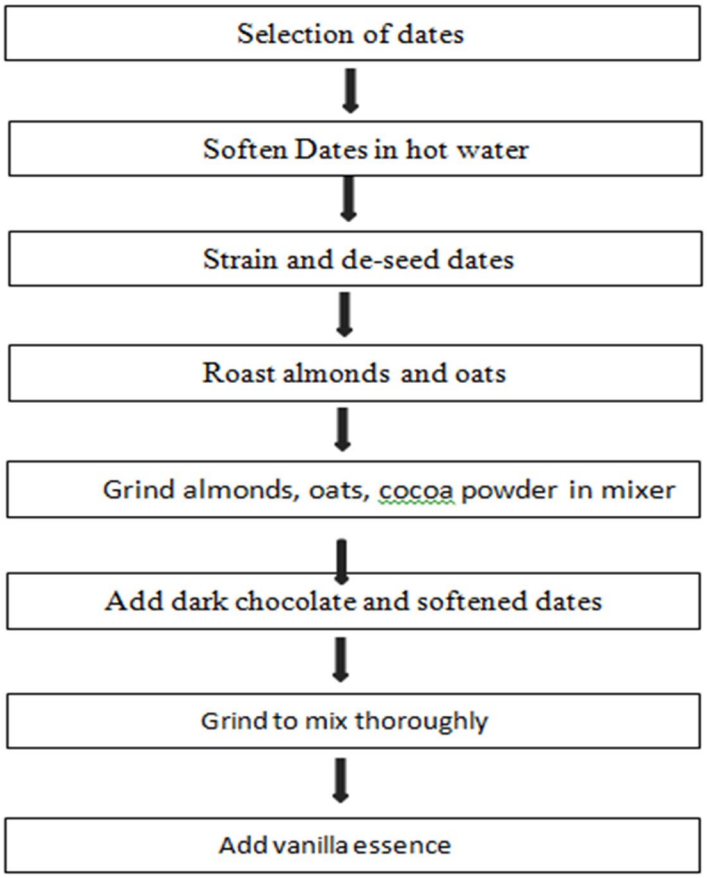
Table No. 2 Equipments Required For New Product Development

Equipments Required	Collection of Raw Material
Chocolate mold	Home
Parchment paper	Home
Microwave	Processing lab
Refrigerator	Processing lab
Measuring cups	Processing lab
Induction	Processing lab
Spatula	Processing lab
Weighing machine	Processing lab
Knife	Processing lab

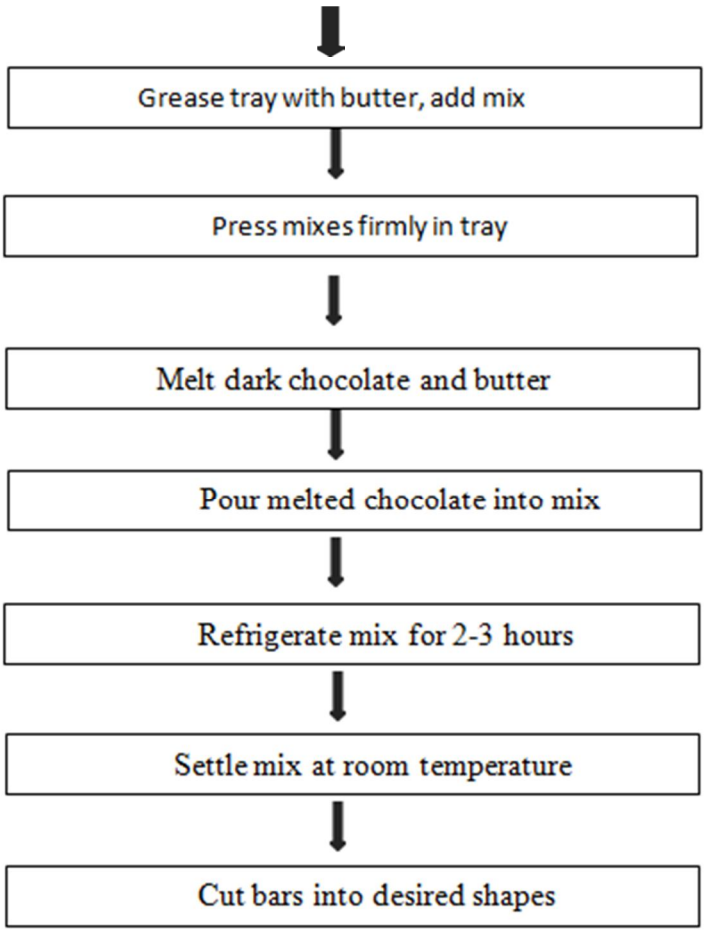
3) *Methodology*

Ingredient selection: High quality dates along with complementary ingredients such as dark compound, oats, almonds, Choco powder, butter, essence to achieve optimal taste.

4) *Flow sheet of preparation of Choco Dates Bar:*



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5) *Sensory Analysis:* Sensory analysis was conducted in the campus of Ballarpur Institute of Technology by a sensory testing consisting of color, appearance, flavor, texture, taste and overall acceptability of product and rated them in a scale of 0 to 10 with 0 as the minimum and 10 as the maximum.

6) *Proximate Analysis:*
7) *Estimation of Moisture:*

The moisture content was analyzed using the Oven drying method. About 5 grams of each sample were weighed on pre-weighed petri plates and placed in an oven set at 105°C for 3 hours. Once dried, the samples were cooled in airtight desiccators to prevent moisture exchange. The drying process was deemed finished when two consecutive weighings, taken an hour apart, showed variations of no more than 5 mg. Moisture content was determined by subtracting the final dried weight from the initial sample weight and expressed as a percentage .%Moisture= (Loss in weight x 100)/ (weight of sample)

8) *Estimation of fat:*

A 5-gram sample was first weighed and then placed within a thimble for containment. The thimble, now housing the sample, underwent an additional weighing to confirm the sample's weight. Next, this thimble, along with the sample, was inserted into a larger cellulose thimble. This combined setup was then carefully positioned within a Soxhlet extraction tube. To initiate the extraction process, 250 ml of petroleum ether was introduced into the Soxhlet extraction tube containing the sample. Once the heating mantle was activated and the temperature set to 60°C, the petroleum ether underwent a cycle of evaporation, condensation, and dripping over the sample at a controlled rate of 150 drops per minute. Upon observing clear petroleum ether in the Soxhlet after 6-12 hours, the entire assembly was deactivated. Subsequently, the round bottom flask containing the solvent was separated from the apparatus to recover the solvent.

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The recovered solvent underwent further processing using a downward distillation unit for subsequent use. Meanwhile, the round bottom flask containing the extracted fat sample underwent a drying process in a hot air oven set at 105°C until all the solvent was completely removed. Following drying, the round bottom flask was cooled in a desiccator, and its weight was measured until three successive readings showed a difference of less than 0.001 grams [AOAC (1995)Assocoation of Official Analytical Chemists, Washington DC]. The percent crude fat was calculated as per the AOAC method.

% Crude Fat= (weight of fat)/(weight of sample) x100

9) Estimation of protein:

The protein content of the samples was determined using the Kjeldahl method. Initially, a 2-gram sample underwent digestion with a digestion mixture consisting of 5 grams, comprising 10 parts potassium sulfate and 1 part copper sulfate, along with 20 ml of concentrated sulfuric acid. This digestion process continued in a Kjeldahl flask until the contents achieved a state of being carbon-free. Following digestion, the resulting digested sample was then adjusted to a final volume of 100 ml.

A 10 ml aliquot of the digested sample was subjected to distillation with 20 ml of 30 percent sodium hydroxide. The liberated ammonia from this process was collected in a solution containing 20 ml of 2 percent boric acid, enriched with 2-3 drops of a mixed indicator. This indicator was a combination of 0.1% methyl red and 0.1% bromo-cresol green, dissolved in 95 percent ethyl alcohol, with a ratio of 1:5, respectively. The entrapped ammonia was subsequently titrated against 0.1N hydrochloric acid.

The nitrogen content in the sample was then calculated using the following expression:

% Nitrogen = (14 x N of HCL x Titre value (ml)× Dilution factor x 100)/ (Weight of sample (g)x100)

10) Estimation of Total Ash:

To determine the ash content, a 2-gram sample was deposited into a silica crucible and ignited over a heater. Later, the crucible was moved to a muffle furnace and kept at 550°C ± 15°C until a pure ash was acquired. The weight of the resultant residue was then noted, and the percentage of ash was calculated using the subsequent formula:

%Ash = (weight of residue x 100)/ (weight of sample)

11) Estimation of carbohydrates:

The percent carbohydrates were calculated by subtracting the sum of moisture, protein, fat, ashand fiber from 100.

% CHO = 100- (% Moisture +% Protein+% Fiber+%+ Ash

12) Microbial Analysis:

The Total bacterial count and fungal load was estimated by serial dilution method.

13) Shelf-life testing:

Shelf life was estimated based on microbial and sensory analysis at intervals of 5 months.

III. RESULT AND DISCUSSION

1) Result



Fig1. sensory analysis of Choco dates bar

2) Sensory Evaluation of Choco Dates Bar:

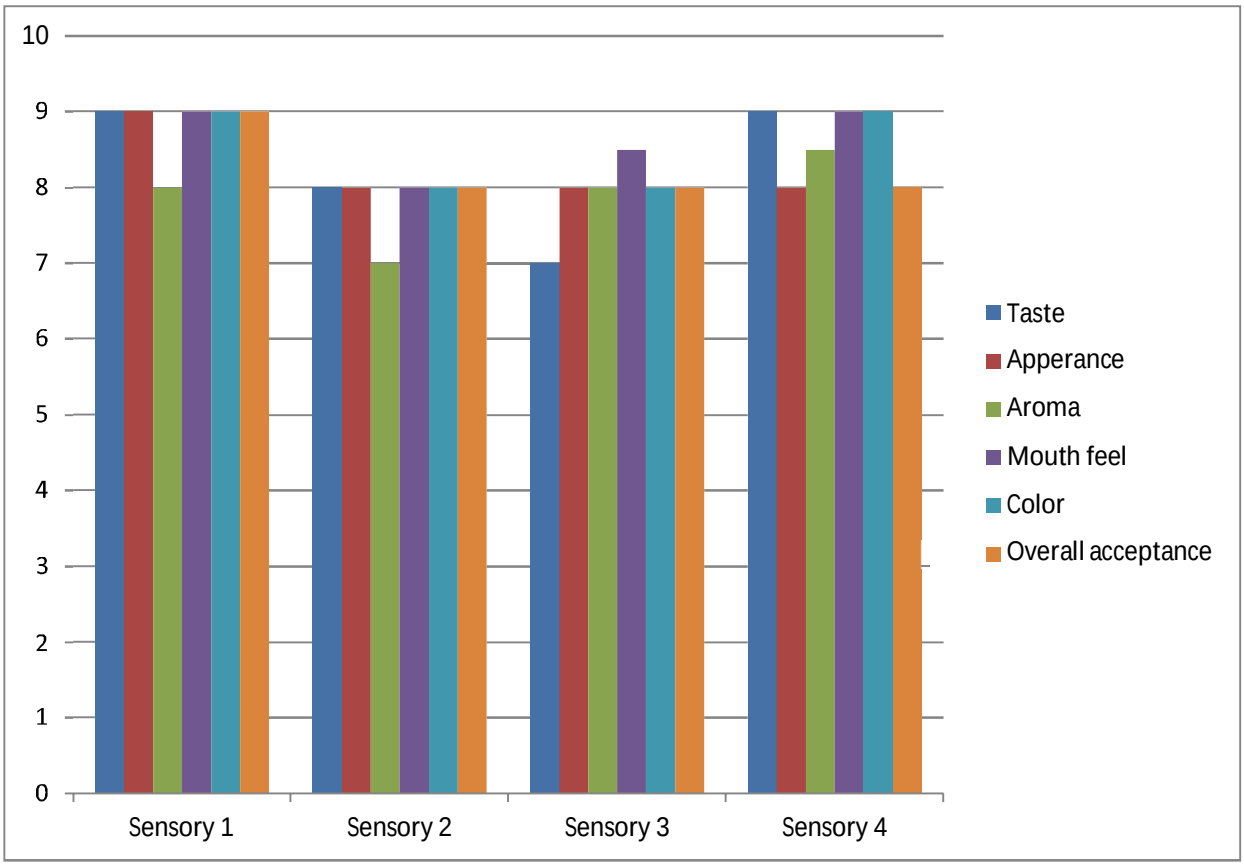


Fig.2 Sensory Evaluation of Choco Dates Bar

3) Proximate Analysis of Choco Dates Chocolates

Table 3: Result of proximate analysis

Factors/ parameters (%)	Result
Moisture content	21.5%
Ash Content	0.92%
Crude Fat	8.25g
Crude Fiber	4.25g
Protein	6.72g
Carbohydrate	62g
Energy	56.11g
Iron	1.24mg
Calcium	317mg
Sodium	2mg
Potassium	431mg

4) *Moisture Content:* Moisture content of Choco dates bar was found to be **21.5%** in proximateanalysis.
5) *Total Ash:* Ash content of Choco dates bar was found to be 0.92% in proximate analysis.
6) *Crude Fat:* The crude fat content of Choco Dates bar was calculated as 8.25g bycomparing with whole Dates and Dark compound.
7) *Crude Fiber:* The crude fiber content of Choco Dates bar was calculated as 4.25g bycomparing with whole Dates and Dark compound.
8) *Protein Content:* The Protein content of Choco Dates bar was calculated as 6.72g bycomparing with whole Dates and Dark compound.
9) *Carbohydrates:* The Carbohydrates content of Choco Dates bar was calculated as **62g** by comparing with whole Dates and Dark compound.

10) *Cost Analysis:*

NAME OF MATERIAL	QUALITY	RATE RS/KG
Dates	100gram	28rs
Dark compound	65gram	20rs
Oats	20gram	5rs
Almonds	10gram	8rs
Coco Powder	5gram	5rs
TOTAL	200grams	66 RS

Table 4: Cost Analysis Of Product

11) *Shelf –Life Study:*

According to our research by doing sensory analysis we observe that the Choco dates bar has a shelf life of **5 to 6** weeks at room temperature after 5 months we observe some changes in taste, texture, aroma and flavor so we observe that it's better to use before **6** weeks.

IV. CONCLUSION

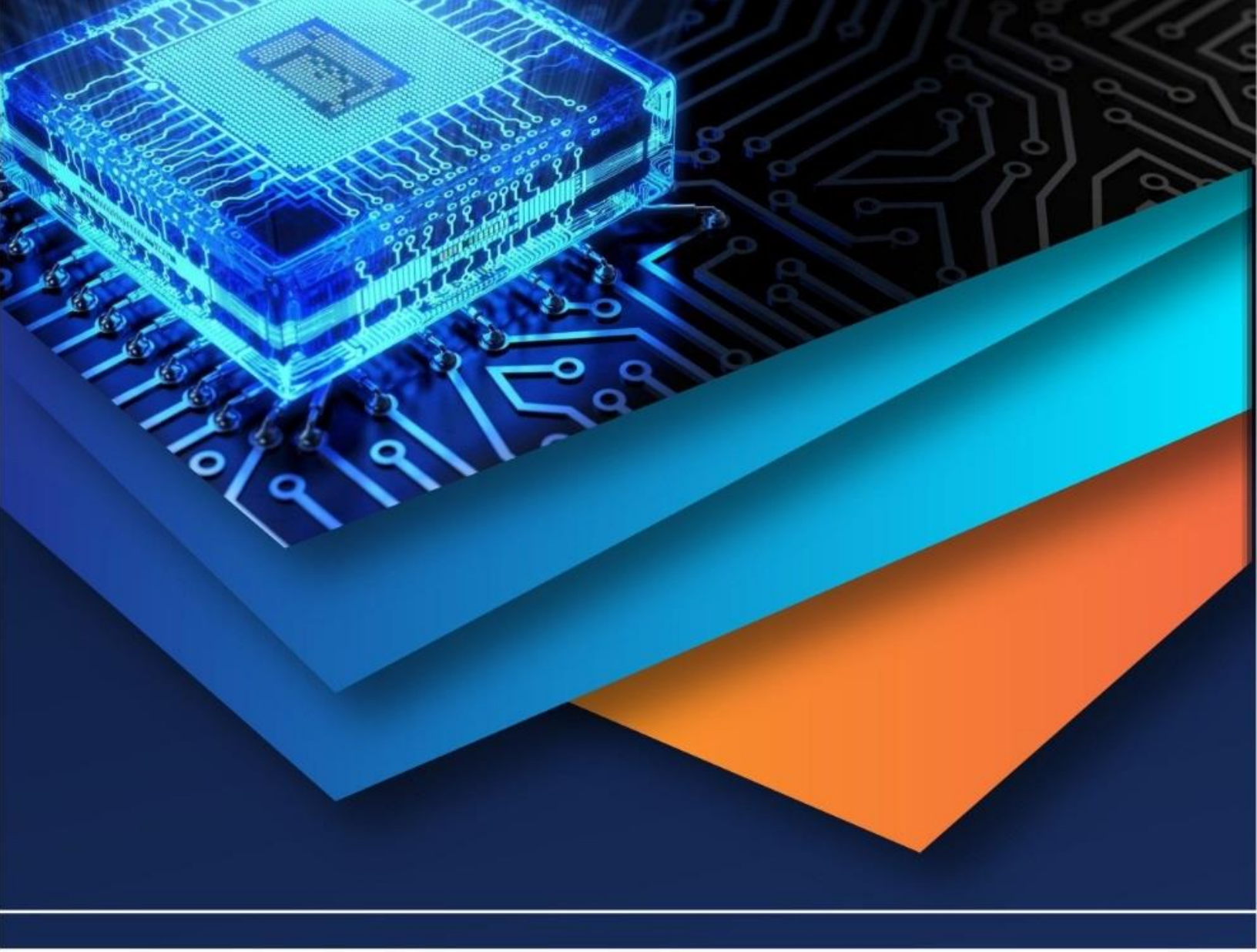
"The present investigation entitled 'Choco date bar' by using dates, and rousted almond, and oats was carried out in the Department of Food Technology at Ballarpur Institute of Technology, Dr. Babasaheb Ambedkar Technical University, Lonere (Maharashtra, India). The experiment was conducted to develop Choco Dates Bars by incorporation of almond, oats, and date with different composition. It can be concluded that date and almond canbe incorporated in suitable proportion in the date bar, which has many health benefits. From the above study, it has been found that with highly nutritious and rich vitamin E minerals including magnesium, iron, calcium, can be prepared by dates, oats, and almondin good texture and taste of Choco date bar is improved by change in proportionof almonds and date as per sensory evaluation carried out. Almond contains a significant amount of protein, but unlike other nuts, they provide protein that is mostly in the form of median change saturated fatty acids."

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