



SYNOPSIS  
on

# DEVELOPMENT OF ADDITIVE FREE GRANOLA BARS

*Bars made up of INDIGENOUSLY grown raw  
materials with no added sugar*

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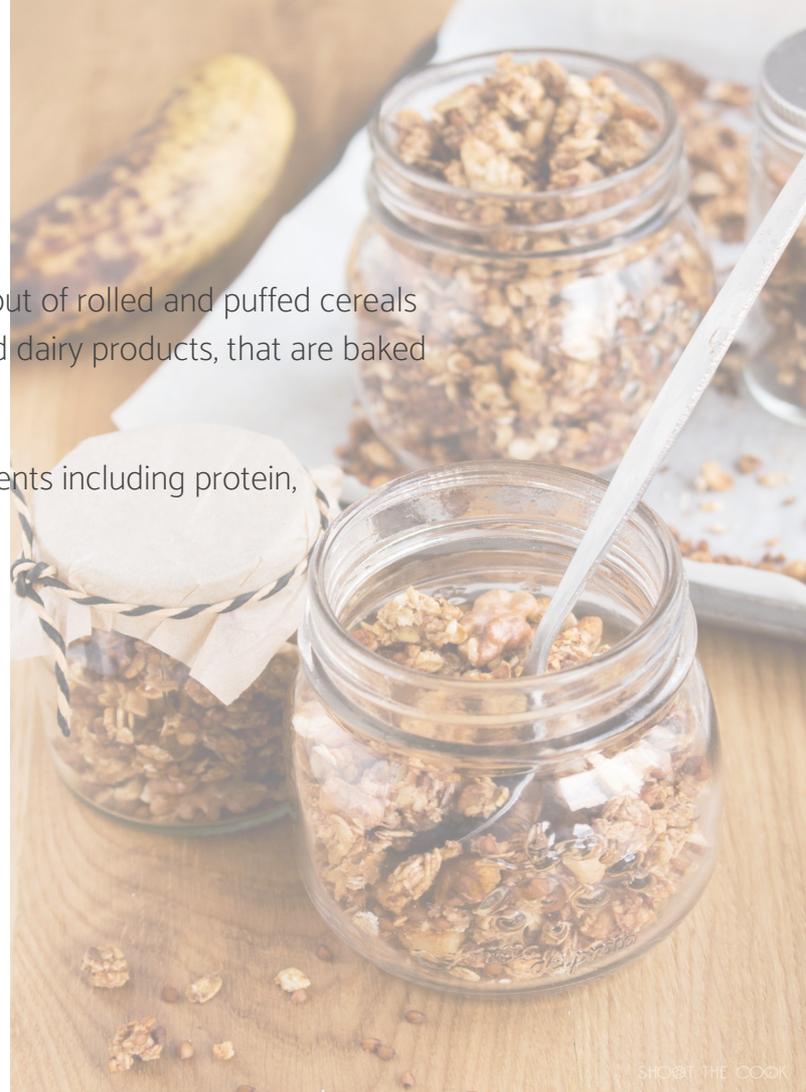
## **REFERENCES**

Mentioning the many useful resources we relied upon for our research

# INTRODUCTION

A granola bar is identified as a breakfast/snack product formulated out of rolled and puffed cereals along with other ingredients such as sugar, nuts, fruits, chocolate and dairy products, that are baked or cooked to form a solid but chewy mass with a definite structure.

These bars are abundantly wholesome and contain a variety of nutrients including protein, carbohydrates, lipids, vitamins, amino acids, phytochemicals, etc.



# JUSTIFICATION FOR THE PROJECT



## ADDED SUGAR

Cereal bars fall into the category of products with the highest content of “added” sugar (23.8g/100 g).



## CONCERNED CONSUMER

Market trends illustrate growing consumer concern regarding the fat, sugar and chemical content of granola bars.



## RURAL EMPOWERMENT

This project promotes rural empowerment as it is a new product for the people made using indigenous raw material such as whole grain, dried fruit, honey, seeds, etc.



## ADDITIVES

Prolonged consumption of chemical additives is proven to cause several coronary, respiratory, digestive, and nervous disorders.

# PROJECT OBJECTIVES

## OBJECTIVE 1

To develop an additive free granola bar with no added sugar making it a healthy, high fibre and nutritious choice for the consumers.



## OBJECTIVE 2

To develop a bar that incorporates indigenously grown raw material such as coarse grains, seeds, etc. in order to empower rural development.





# REVIEW OF LITERATURE

## 1960's

Granola bars gained popularity for the first time in the states during the 'Hippie Movement'

## Growing trends

According to the World Bank, consumption expenditure in India increased from being 65% of GDP in 2010 to become around 70% of the GDP in 2016. With an increase in health consciousness and rise in per-capita expenditure towards premium.

## First bar ever

Pastéli was created in ancient Greece using sesame seeds and honey. This is the first bar to be created.

## India and granola

Vijay Uttarwar introduced granola in 2006. His strategy failed due to the wrong target audience.

## Current Market overview

India snack bar market is forecasted to grow at a CAGR of around 25% during the forecasted period (2019-2024).

# REVIEW OF LITERATURE



## SPACE FOOD

The first energy bars were called “Space Food Sticks” and were released in the 1960s. They were developed by NASA, the U.S. Air Force, and the Pillsbury Company

## ATHLETES



It was commercially released in 1986. This bar was low in fat and moderate protein, fiber and carbohydrate. Performances were improved and the power Bar became widely common among athletes

Energy bars went through three different development stages. Those stages are energy bars for: astronauts, athletes, and, the public.



## PUBLIC

Ordinary people started to consume energy bars because they provided them with energy to perform different daily tasks also they were convenient and shelf stable.

# MAJOR PLAYERS IN INDIA

## REVIEW OF LITERATURE

01

UNIBIC Foods India Pvt. Ltd.

The UNIBIC logo consists of the word "UNIBIC" in white, uppercase letters inside a red rectangular box.

02

Yoga Bar

The Yoga Bar logo features the words "Yoga Bar" in a stylized, handwritten font. Below it, the tagline "REAL FOOD. REAL ENERGY." is written in a smaller, sans-serif font.

03

General Mills

The General Mills logo features a blue ampersand symbol followed by the words "General Mills" in a blue, sans-serif font. Below it, the tagline "Making Food People Love" is written in a smaller, sans-serif font.

04

Naturells India Pvt. Ltd.

05

EAT Anytime

The EAT Anytime logo features the word "eat" in a red, lowercase, cursive font. Below it, the words "Any Time" are written in a smaller, red, sans-serif font. The logo is framed by a red outline of a smile.

## INDIA'S HUMBLE 'LADOOS'



Depending on which part of the India you belong to, a myriad of images will pop up in your mind as soon as you think of ladoos.



Indian physician, Sushruta, used ladoos as an antiseptic to treat his surgical patients. He used a concoction of ingredients like sesame seeds, jaggery and peanuts to make ladoos that we today fondly call *til* ladoo.



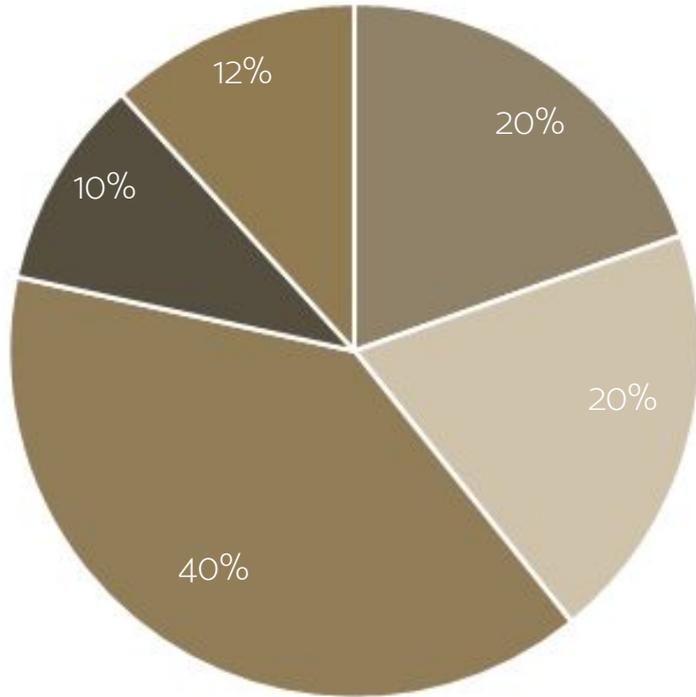
As per the available records, Susruta included herbs, seeds and medicinal edibles into ladoos with a little bit of honey. We wish to combine the concept of energy ladoos and granola bars.



S. no	Treatments	Puffed cereal (%)	Dry fruits (%)	Sweetner(%)	Flavouring (%)
1.	control	30	30	20	10
2.	T1	35	30	20	10
3.	T2	40	30	20	10
4.	T3	45	30	20	10
5	T4	50	30	20	10

S no	Parameters	Descriptions
1	Product	Muffins
2	Ingredients	Flour , oil, essence , salt, sugar, okara, baking po
3	Method used	Baking (OTG)
4	Packaging	LDPE
5	Storage condition	Ambient
6	Proximate analysis	Moisture, protein, fat, ash content, crude fiber, tot count
7	Time interval for quality and shelf life analysis	07 days

## Ingredients



- Rolled/Puffed Cereals
- Dry Fruits
- Sweetener(s)
- Seeds
- Flavouring and other

## Materials

### **Rolled/Puffed Cereals**

Sorghum, Millet, Barley, Amaranth, Wheat

### **Dry Fruits**

Almonds, Pistachios, Cashews, Walnuts,  
Raisins, Figs, Peanuts

### **Sweetener(s)**

Honey, Date Paste/Syrup, Jaggery

### **Seeds**

Flaxseed, Sesame Seeds, Watermelon Seeds

### **Flavouring and other**

Cinnamon, Nutmeg, Cardamom, Ginger  
Powder, Roasted Chickpea

# Parameters Studied



## APPEARANCE

Appearance is a function of the formulation. When the sweetener used is date paste the bars appear dark brown, while honey imparts a golden-brown colour.



## TASTE

Taste is governed by the type and quantity of cereals, nuts, fruits, sweeteners. Taste profile changes extensively when proportion of these major ingredients is altered.



## FLAVOUR

Honey not only provides sweetness and flavour itself but also enhances the perception of other flavouring agents such as spices, herbs, fruits and nuts.



## TEXTURE

The texture of granola bars is a combination of crunchy and chewy. Crunch is imparted by roasted puffed cereals and nuts while chewiness is attributed by dried fruits and binder component.



## SHELF LIFE

Homemade granola bars last a week on the shelf, with the help of optimally dehydrated ingredients, sweeteners, and packaging, this could be extended to 6 months.



## OVERALL ACCEPTABILITY

When all the above studied parameters are at their finest, they lead the bar to an improved overall acceptability.

1. Cleaning

2. Roasting

3. Mixing

4. Shaping

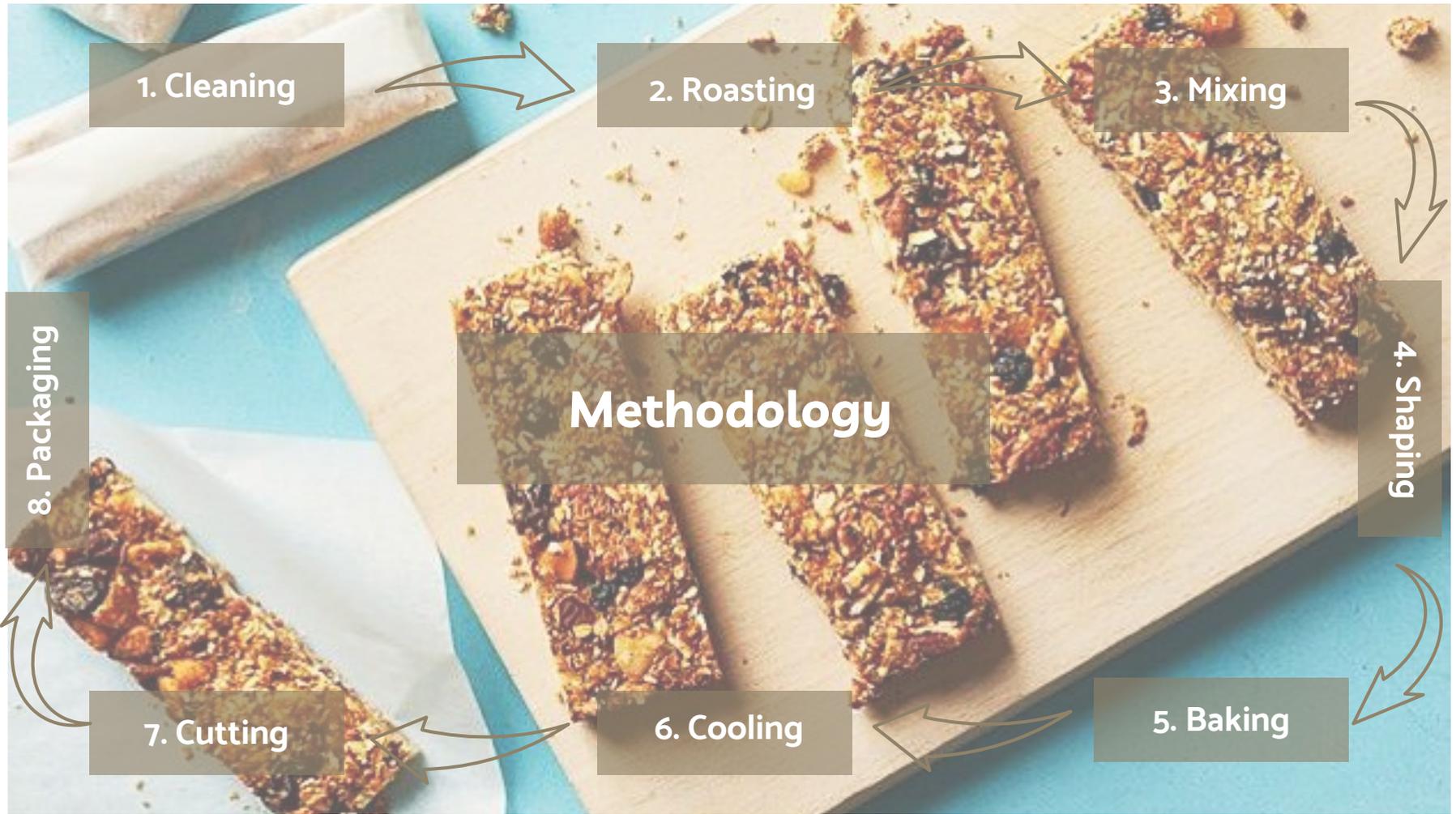
5. Baking

6. Cooling

7. Cutting

8. Packaging

## Methodology



# Formulae/Statistical/Mathematical Tools

## Formula

$$\text{Total Caloric Value (TCV)} = [(\text{carbohydrates} + \text{protein}) * 4 + (\text{lipids}) * 9] \text{ kcal.g}^{-1}$$

The quantity of carbohydrates, protein and lipids will be derived from approximate nutritional analysis based on the nutrition labels found on the packaging of each ingredient.

## Statistical Tools

Data gathered by sensory evaluation performed by untrained panelists through a 9-point hedonic scale for appearance, colour, taste, flavour, texture and overall acceptability will be subjected to analysis of variance (ANOVA).

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**THANK YOU**

