

NUTRITIONAL BAR USING VARIOUS SEED AND FIGS

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ABSTRACT

The present investigation was carried out to develop and characterize the energy bars for the sports person using different seeds viz., Flax seeds, Chia seeds, Pumpkin seeds. Bars were prepared by using multi seeds blended at various levels viz., 5, 10, 15 and 20 per cent by using finger millet as a base. Proximate parameters estimation was done to assess the nutritional profile of all the developed energy bars. The results revealed that Flaxseed blended energy bar with 15 per cent and 20 per cent composition obtained highest crude protein i.e. 12.93 & 13.28 per cent and energy 444.67 & 452.69 kcal/100g when compared to other treatments. The proximate parameters of all the energy bars varied non-significantly during the storage period up to thirty days. Therefore, Flaxseed energy bars with 15 per cent and 20 per cent composition can be recommended to the sports person to meet their nutritional requirement and as a quick source of energy.

Key words: Sports Nutrition, Energy bars, Flax seed, Chia seed, Pumpkin seed.

I. INTRODUCTION

According to UNICEF 2016 data, 22.9% of the children worldwide under the age of five had stunted growth. Around 50% of all deaths in children under five years are attributable to undernutrition, which amounts to a loss of 3 million young lives every year. 52 million children under the age of five were wasted of which 17 million were extremely wasted globally, which implies a prevalence of about 7.7% and 2.5%, respectively. Tackling protein-deficiency related conditions among the youngest section of the population is the need of the hour. For the past few years, the demand for snack products with improved nutritional properties has increased¹,

due to their high functionality, convenience and desirability, especially among children.² High-protein nutrition (HPN) bars containing 20-50 g protein/100 g are one of the ways of incorporating a substantial amount of protein into the diet of children. Spirulina, a multicellular and filamentous cyanobacteria, has gained popularity and acceptance in the food processing industries as a food supplement. Spirulina grows in water and can be harvested and processed easily. It has very high macronutrient and micronutrient contents. It is rich in amino acids, unsaturated fatty acids, minerals, and vitamins. Spirulina consists of 55–70% protein content, 15–25% polysaccharide, 5–6% total lipid, 6–13% nucleic acids, and 2.2–4.8% minerals.³ The Food and Drug Administration (FDA) has granted GRAS certification (Generally Recognized As Safe) for Spirulina and has had its consumption authorized as food or food supplement.

II. OBJECTIVES:

- To prepare the nutritional bar using nutritive seeds.
- To analyse the properties of nutritional bar.
- Creating a convenient snack option that provides sustained energy through a balanced combination of complex carbohydrates, protein and healthy fats.
- Highlighting the health benefits which is associated with seeds.

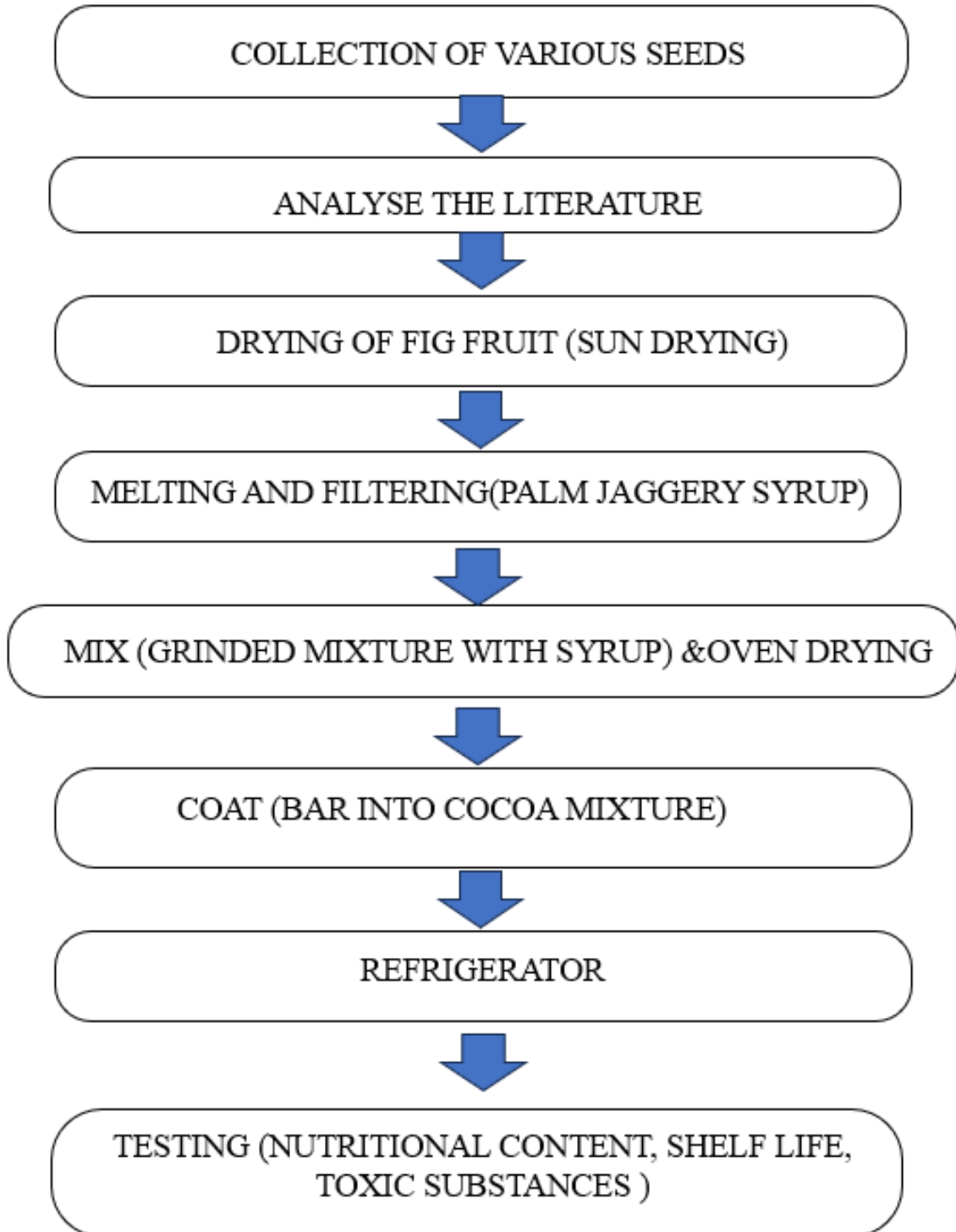
III. LITERATURE SURVEY

Sangita Sood, Ranjana Verma., (2017) entitled as “**DEVELOPMENT AND STORAGE STABILITY OF MULTI SEED ENERGY BARS FOR SPORTS PERSON**” said that, The present investigation was carried out to develop and characterize the energy bars for the sports person using different seeds viz., Flax seeds, Chia seeds, Pumpkin seeds. Bars were prepared by using multi seeds blended at various levels viz., 5, 10, 15 and 20 per cent by using finger millet as a base. Proximate parameters estimation was done to assess the nutritional profile of all the developed energy bars. The results revealed that Flaxseed blended energy bar with 15 per cent and 20 per cent composition obtained the highest crude protein i.e. 12.93 & 13.28 per cent and energy 444.67 & 452.69 kcal/100g when compared to other treatments. The proximate parameters of all the energy bars varied non-significantly during

the storage period up to thirty days. Therefore, Flaxseed energy bars with 15 per cent and 20 per cent composition can be recommended to the sports person to meet their nutritional requirement and as a quick source of energy. From this literature, The various seeds are increasing our body strength and it is very helpful for sports persons.

Nguyen van Toan , Tran QuangVinh, (2020) entitled as “PRODUCTION OF NUTRITIONAL BARS WITH DIFFERENT PROPORTIONS OF OAT FLOUR AND BROWN RICE FLOUR “ said that Nutritional bar has been paid special attention, then quickly developed and present in some parts of the world as it contains high nutritional value, quick energy release on required demanding basis, especially the form of this food is very mobile and neatly light. Nutritional bars are nutritional products which contain cereals and other high energy-rich ingredients. They are becoming trendy food products in the world in these days. They can be used as the nutritional meal, meal replacement, or snack which provides a lot of essential nutrients for people who lack thetime or resources for extensive meal planning due to its convenience. Purpose: The purpose of this study is to determine the suitable process for a preparation and a possible replacement to reduce the production costs of oat flour by brown rice flour in the processing of nutritional bars. Materials and Methods: The collected samples of brown rice were sorted and soaked in clean water with a ratio of the rice to water of 2:3 (W/W) at ambient temperature for 3 h. They were then drained and dried in an oven dryer at 40°C for 4–5 h until the level of moisture content drops around 12–16%. Then, they were ground using a laboratory grinder. The dried flour samples were passed through a 70-mesh sieve and roasted on pan at 100°C for 10 min before stored in a plastic bag at ambient condition for further use.

IV. METHODOLOGY



V. COLLECTION OF VARIOUS SEEDS



Fig 1.1 Cocoa powder



Fig 1.2 Cocoa butter



Fig 1.3 Palm jiggery



Fig 1.4 Watermelon seed



Fig 1.5 Dry fig fruit



Fig 1.6 White sesame



Fig 1.7 Sunflower seed



Fig 1.8 Flax seed

ANALYSE THE LITERATURE

Literature reviews forms the base of any project. Ingredients were selected on account of their nutritional and functional characteristics. The method for preparation of Nutri energy bar was standardized based on sensory evaluation. Product prepared with the addition of 40g dates was more acceptable.

DRYING -FIG FRUIT

The fig should be dried for 4day by using by using the method of solar drying it helps us to remove the moisture content.Ripened fig fruits should be rinse thoroughly through the salt and lemon water twice . The is should kept soaken for 5mintues .Suchprocessis done is togems and dirt and dries especially micro organisms .

MELTING AND FILTERING(PALM JAGGERY SYRUP)

Melting palm jaggery syrup involves heating it gently until it becomes a liquid consistency.Use a double boiler or a low heat setting to prevent burning.

MIX (GRINDED MIXTURE WITH SYRUP) &OVEN DRYING

Collect watermelon seeds, pumpkin seeds, flaxseeds, sunflower seeds, and palm jaggery syrup. If the seeds are not already roasted, you can dry roast them in a skillet over medium heat until they become fragrant and slightly golden.

COAT (BAR INTO COCOA MIXTURE)

Mix cocoa powder and sweetener in a bowl.Adjust sweetness to taste.Melt the mixture slightly to make it easier to coat the bars.Stir until smooth.

REFRIGERATOR

Chewy and slightly crunchy, reminiscent of biting into a refrigerated fruit and nutritional bar. Promoted as being as fresh as if it were just plucked from the refrigerator. So instead of the fridge: Store it in a cool, dry place. When chocolate is kept at a consistent temperature below 70°F (ideally between 65 and 68°F), and at a humidity of less than 55%, the emulsion of cocoa solids and cocoa butter will stay stable for months.

TESTING:

1) Thus the testing process include :

Nutritional parameter

Glucose

Protein

Vitamin

Iron

2) GCMS analysis (Gas Chromatography Mass Spectrometry)

VI. PROCESSING

Mix cocoa powder and sweetener in a bowl. Adjust sweetness to taste. Melt the mixture slightly to make it easier to coat the bars. Stir until smooth. Prepare your bars by cutting them into desired sizes. Place parchment paper on a tray or plate. Dip each bar into the cocoa mixture, ensuring it's evenly coated. Use a spoon or spatula to help coat if needed. Place the coated bars on the parchment paper. The bars sit at room temperature to set. Alternatively, you can chill them in the fridge for faster setting. Once set, store the coated bars in an airtight container. Consider experimenting with different coatings like dark chocolate or matcha for variety. Make sure to use unsweetened cocoa powder for a healthier. As smoother coating, you can melt chocolate chips and dip the bars in melted chocolate instead of using a cocoa mixture. Consider using a double boiler to melt the cocoa mixture gently to avoid burning. Get creative with the flavors by adding spices like cinnamon or cayenne pepper to the cocoa mixture. Drizzle melted butter over the coated bars for added flavor. Press the toppings gently into the coating to ensure they stick with different types of nutritional bars to find your favorite combination. Fat needs to be tempered in the same way that cocoa butter needs tempering. A chocolate compound can be

produced by the inclusion of cocoa butter equivalent (CBE) into the recipe at a level above 5% or as a 100% replacement of cocoa butter. Add a pinch of salt to enhance the flavor of the cocoa mixture. the chocolate in short intervals or use a double boiler to melt it gently. Stir the chocolate occasionally until it's completely smooth. Line a tray or plate with parchment paper. For a smoother coating, you can melt chocolate chips and dip the bars in melted chocolate instead of using a cocoa mix. The process of removing moisture from seeds is called drying. Drying seeds is important to maintain their viability and vigor during storage, as without drying, seeds can deteriorate quickly due to mold growth, heating, and microbial activity. Seed is usually dried in stages with heated air each stage consisting of a pass through the drier. Between passes the seed is stored in bins for an equilibrium period known as tempering period. This period of tempering shortens the total drying time. Sun drying is a traditional method for reducing the moisture content of seeds. It involves spreading the seeds in a thin layer on a drying floor and exposing them to the sun for 10–15 days. To ensure uniform drying, the seeds should be stirred frequently, especially if they are in direct. Seeds with a moisture content of more than 17% should be dried in the shade first to reduce the moisture content to less than 17%. Sun dried seeds should not be left on the floor overnight as they will absorb moisture from the air. Direct sunlight can negatively affect seed germinability due to high temperatures and ultraviolet radiation, especially if the seeds have a high moisture content. Sun drying can cause sun checks or hot spots due to temperature variations, which can lead to a high amount of breakage during processing. Dust, dirt, and other foreign materials can get mixed in with the seeds. Sun drying is subject to high weather risks and damage from heavy wind and rain. nutritious bar with roasted pumpkin and watermelon seeds, start by roasting the seeds in the To make a oven until they're golden brown and crunchy. Then, mix them with other ingredients like dried fruits, various seeds for binding. Press the mixture into a baking pan, refrigerate until firm, then cut into bars. These bars are packed with protein, healthy fats, and fiber, making them. Roasting seeds like pumpkin and watermelon can elevate their flavor and texture, making them perfect for nutritious snacks or ingredients in bars. To roast them, spread the seeds on a baking sheet, drizzle with a bit of oil, and season with salt or your favorite spices. Bake in the oven until golden brown and crispy. Roasted pumpkin seeds have a nutty flavor, while watermelon seeds offer a unique crunch. Sunflower kernels release their natural oils while dry roasting and have the best nutty flax. Roasted flax seeds are high in fiber content which breaks down slowly in the body. This helps control appetite as it gives a full stomach feeling for a longer time.



FIG 2.1 SEEDS AND FIG BAR

VII. RESULT AND DISCUSSION

SEEDS AND FIG BAR:

This nutritional bar is made by confectionary method, which is done by using various process such as drying, blending, coating, refrigerating. This nutritional bar is done for the following outputs of nutritional parameters. We are testing all nutritional parameters in the nutritional bar with the help of FSSAI lab manual, which will be tested and the results are comes from the TRI BIOTECH laboratory

NUTRITIONAL INFORMATION OF BAR:

s.no	Test parameters	Testing value (Per 100 g)
1.	Vitamin A	67.5
2.	Protein(g)	5.8
3.	Iron value(g)	7.65
4.	Gulcose(g)	47.6

VIII. CONCLUSION

In this work ,we made chocolate from various nutritive seeds.The aim of this work is to increase the consumption of nutritive bars.we have undergone some analysis to study the properties of these seeds . Nutritional bars offer convenient and portable snack options for busy lifestyles.They provide a balance of macronutrients, including protein, carbohydrates, and fats, aiding in energy release and satiety.Many nutritional bars are fortified with essential vitamins and minerals, contributing to overall health and well-being.They come in various flavors and formulations, catering to different dietary preferences and requirements.Nutritional bars are often used as pre- or post-workout snacks to support muscle recovery and replenish glycogen stores.Some bars are tailored to specific dietary needs, such as gluten-free, vegan, or low-carb options, expanding their accessibility. Nutritional bars can serve as healthier alternatives to traditional snacks high in sugar, salt, and unhealthy fats.

While they can be a convenient option, it's essential to choose bars with minimal added sugars and artificial ingredients to maximize their nutritional benefits.overall this nutritional bar maximises the consumption .

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