

# Preparation and Characterization of Protein Rich Bites (Protobites)

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**Abstract-** Human body requires all the nutrients in proper and adequate quantity for proper growth and development. Today's urban life is becoming more faster and faster that no one has enough time to take complete meal which can provide all the required nutrients to body . Therefore there is need of such food products which can provide a consumer with all the essential nutrients like Carbohydrates and Proteins in a single bite. Also today's modern lifestyle aims at consuming food products with low fat content. Proto-bites is such an initiative taken by team of research scholars to develop a food product with high carbohydrate and protein content and low fat content which is perfectly suited for modern lifestyle. The product developed is free from Maida and wheat flour, thus it is gluten free. It consist of zero Trans fat and cholesterol. The product has high shelf life and is highly cost effective as it is produced from raw materials which are very cheap in cost. Therefore it can serve as concentrated source of nutrients for economically backward people of society in low cost .It has potent of antibiotic, antibacterial and antifungicidal properties.

**Key words:** - Nutrient, gluten, trans fat, antibiotic.

## I. INTRODUCTION

Protein bites are targeted to people who primarily want a convenient source of protein that doesn't require preparation (unless homemade). There are different kinds of food bars to fill different purposes. Energy bars provide the majority of their food energy (calories) in carbohydrate form. Meal replacement bars are intended to replace the variety of nutrients in a meal. Protein bars are usually lower in carbohydrates than energy bars, lower in vitamins and dietary minerals than meal replacement bars and significantly higher in protein than either. Protein bars are mainly used by athletes or exercise enthusiasts for muscle building. In addition to other nutrients, the human body needs protein to build muscles. In the fitness and medical fields it is generally accepted that protein after exercise helps build the muscles used. Whey protein is one of the most popular protein sources used for athletic performance. Other protein sources include egg albumen protein and casein, which is typically known as the slow digestive component of milk protein. Vegan protein bars contain only plant proteins from sources like peas, brown rice, hemp, and soybeans. There is a disagreement over the amount of protein required for active individuals and athletic performance. Some research shows that protein supplementation is not necessary. Athletes generally consume higher levels of protein as compared to the general population for muscular hypertrophy and to reduce lean body mass lost during weight loss. The American Dietetic Association, Dietitians of Canada, and American College of Sports Medicine supports higher protein intake for athletes in order to enhance athletic performance and recovery.

The research work carried out aimed to develop such a product which has the potent capacity to tackle with the issue of Protein energy malnutrition in the body and provide the essential requirement of proteins as well as calories but zero Transfat as well as contains a good amount of dietary fibers. We are aiming to put forward the research work to the government of India so that it can be utilized by them to tackle with the problem of protein energy malnutrition among the children, mainly in the rural area who are not getting the proper protein daily requirement in their regular diet. Children nutritional status is a sensitive indicator of community health and nutrition ( Dhatri et al., 2013)

## Experimental methodology:

The study was carried out in the Department of Food Chemistry and Nutrition ( FCN), MIT College of Food Technology, Pune. All required ingredients (enlisted below) such as ragi malt. Soy flour, Sorghum flour etc. are procured from the local market of the Hadapsar, Pune. The sensory evaluation of protobites is carried out by expert and semi-trained panel of MIT-CFT. The proximate analysis of the protobites was estimated by the methods given by AOAC (1999) in FCN laboratory, MIT-College of Food Technology, Pune.

## INGREDIENTS

1. Ragi Malt
2. Tulsi extract
3. Defatted Soy flour
4. Sorghum flour
5. Peanut Butter
6. Milk
7. Chocolate

8. Flavoring agents (Vanilla essence)
9. Margarine
10. Icing sugar

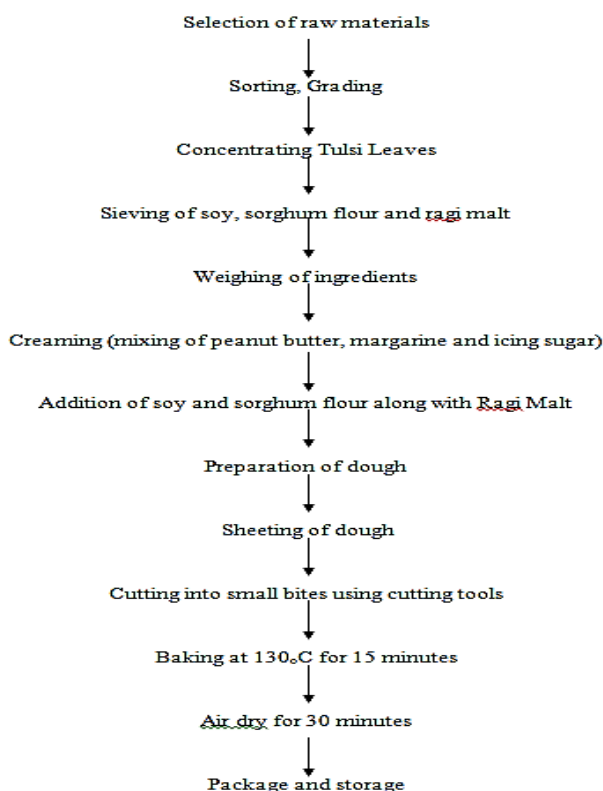
#### A. Trials conducted:

**Trial One:** A combination containing composition of Sorghum and Defatted Soy flour along with icing sugar, peanut butter, baking powder, and flavoring compounds were used and formed into bites and further baked. This was done in order to increase the protein content of bites . But the result was the bites with low protein content and high fat content.

**Trial Two:** In this trial ragi malt was added to the above same composition and reduced amount of peanut butter was used to lower the fat content of bites.

**Trial Three:** With the above made ingredient compositional changes the protein value was increased to considerable level and the fat content was reduced to a extent possible (along with maintaining the desired texture).the objective left over to be tackled with was about the shelf life of product , in this regards incorporation of eugenol based (i.e., tulsi leaves extract) compounds was made into use .Finally the effect was increased in shelf life of product with shelf stability of bites.

#### B. FLOW SHEET FOR PREPARATION OF PROTO-BITES



#### C. RESULT AND DISCUSSION

**TABLE NO .1.NUTRITIONAL VALUE OF RAW MATERIALS**

Ingredients	Carbohydrates g/g	Proteins g/g	Vitamins and Minerals %
Ragi malt	0.72	0.07	Calcium-35%
Soy flour	0.39	0.47	Iron-54%, Calcium-25%
Sorghum flour	0.75	1.06	Calcium-30%
Tulsi leaves extract	0.0	0.1	Vit.K-27%, Vit A-6%
Peanut butter	0.33	0.09	Vit.E-13%, Niacin-20%
Milk	0.16	0.04	Calcium-4%
Chocolate	0.21	0.13	Vit.E-15%
Margarine	0.4	0.1	Vitamin K

**TABLE NO .2. COMPOSITION OF PROTO-BITES**

Nutrients	Quantity %
Carbohydrates	39
Proteins	30
Fats	20
Minerals:-	
Phosphorus content	0.28
Calcium content	0.35
Moisture content	4
Fiber	18
Ash Content	5

**TABLE NO .3. ENERGY VALUE**

Nutrients	Energy (kcal)
Carbohydrates	156
Proteins	120
Fats	140

Note – 1.Peroxide test was conducted at the MIT CFT Laboratory for the shelf life study of the product and on the basis of the test conducted it was concluded that the product have shelf life of 4 months without the use of highly modified packaging material and temperature control system.

#### II. CONCLUSION

We accomplished the agenda of developing a product having high protein value, calorie providing, low in fat content, high shelf life and most importantly a very low cost which will in future help the Government of India to make this product easily accessible to the children in need. And here by we conclude by presenting our efforts in the form of

this Potent product with the above discussed properties, as a contributing step for the fight against Protein Energy Malnutrition in India as well as across the globe.

#### REFERENCES

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