

DEVELOPMENT OF PROTEIN RICH POWDER BY INCORPORATING JACKFRUIT SEED AND ALMOND

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Abstract:

Proper nutrient intake playing a major role in muscle growth, wait and all physical-mental performance proper protein intakes is an important thing in this. Jack fruit (*Artocarpus heterophyllus*) is a very applicable fruit in food industry, by considering jackfruit seed (*Artocarpus heterophyllus lam.*) is also very applicable because it is rich in vitamin A, vitamin B, niacin, calcium, thymine, riboflavin, potassium, iron, magnesium, manganese, protein, carbohydrate, fiber and many other essential nutrients that necessary for our body preparing a protein rich powder with adding jack fruit seed and almond in the ratio of 5%,6%,7% and 8% respectively observing it with various analysis and selecting good or better result

*keyword: Protein Rich Powder, Jackfruit Seed, Almond

1.INTRODUCTION

All over the world we all are running for achieving certain goals for our future. Because of the busy life we may forgetting about the important proteins that very essential for our body protein powder carrying a major role in this situation- it is a popular nutrient supplement giving the essential micro nutrients that helps build muscle, repair tissue and make enzyme and hormones[1]. It also aid weight loss and help people tone their muscle. It is an important source of vitamin, carbohydrate, protein, fiber and other essential micro nutrients. Protein powders may include plants (soybeans, peas, rice, potatoes and hemp) egg or milk (casein or whey protein). Powder may include other ingredients such as added sugars, artificial flavoring, thickener, vitamins and minerals[1]. This jack fruit seed (*Artocarpous heterophyllus*) protein rich powder incorporated with almond (*Prunus dulcis*) showing appositve effect on consumer health because of its high nutrient and protein content

Jackfruit/jackfruit seed (*Artocapus heterophyllus lam*), which is commonly known as jackfruit is a tropical climacteric fruit, belonging to Moraceae family, is native to Western Ghats of India and common in Asia, Africa and some region in South America[2]. Jackfruit is rich in nutrients including

carbohydrates, protein, vitamins, minerals and photochemical. Both the seeds and flesh of jackfruit are consumed as carries and boiled forms.

A) Nutritional benefits of jackfruit seed: Jackfruit seeds are rich in thiamin and riboflavin, it which helps in turning the food that eat into energy and keep our eyes, skin and hair healthy[2]. These seeds also contain small amount of minerals like zinc, iron, calcium, copper, potassium and magnesium[4]. Jackfruit seed playing incredible benefits in our body as[2]

- Helps in curing mental stress and skin disease.
- Prevent Anemia.
- Healthy hair and good eyesight.
- Prevent indigestion.
- Build muscles.

B) Nutritional benefits of almond: Almond contains vitamins, minerals, protein and fiber[3]. Also they may offer a number of health benefits. It is rich in with antioxidants and vitamin E. It can eat almond raw or as a snack or add them to sweet or savory dishes. Almond contain many benefits as[3]

- Delivering a massive amount of nutrients.
- Loaded with antioxidants.
- High in vitamin E.
- Almond can assist with blood sugar control.
- Almond can lower cholesterol level.
- Almond prevents harmful oxidation of LDL cholesterol.

NUTRITIONAL CONTENTS

Jackfruit seed		Almond	
content	Amount per serving	Content	Amount per serving
Calories	54g	Calories	163g
Carbohydrates	11.12g	Carbohydrate	6.13g
Fiber	0.5g	Fiber	3.55g
Magnesium	5% of RDI	Magnesium	76.5mg
fat	0g	Total fat	14.3g
Protein	2.2g	Vitamin E	7.28mg
Riboflavin	8% of RDI	Riboflavin	0.321mg
Thymine	7% of RDI	Calcium	76.4mg
phosphorous	4% of RDI	Potassium	208mg

Table :1.1

2. MEATIREALS AND METHEDODOLOGY

2.1 PREPARATION OF JACKFRUIT SEED POWDER: Jackfruit seed powder is a rich source of dietary fiber, protein, carbohydrates, vitamin A, B, C and minerals. It helps to prevent indigestion and constipation. This powder is rich in thiamin and riboflavin which helps in turning the food you eat into energy and keep your eyes, skin and hair healthy



Jackfruit seed



Cleaning



Cutting



Deseeding



Peeling of aril



Soaking in water (24 h)



Removal of thin brown spermoderm



Steaming of cotyledons



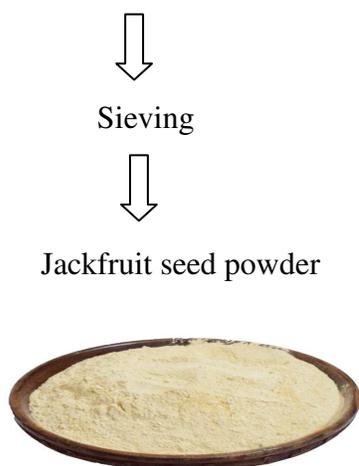
Draining of water



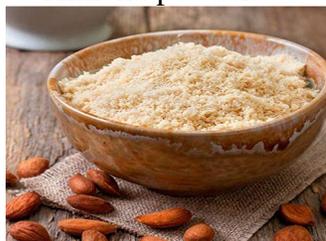
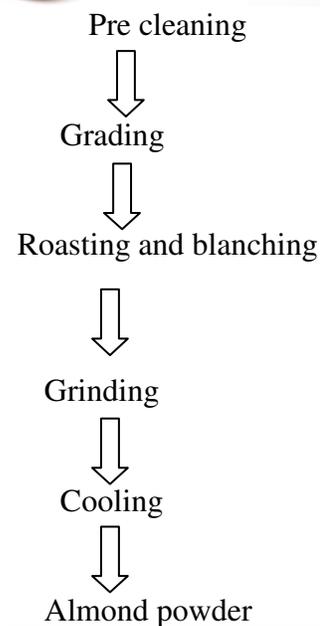
Slicing



Milling



2.2Almond Powder: Almond delivers a massive amount of nutrient for our body. Almonds are high in vitamin E and loaded with antioxidants. It can assist with blood sugar control. Almond can lower cholesterol level and it also prevents harmful oxidation of LDL cholesterol.



2.3.Preparation of Protein rich powder :

Jackfruit seed powder and almond powder are mixed together at different proportions. Adding other ingredients – xanthan gum as thickener in 0.2%, maltodextrins as sweetener instead of sugar powder. Mixing it all and analyzing in various proportion.

Jackfruit seed powder	Almond powder
80%	20%
70%	30%
60%	40%
50%	50%
40%	60%

Table 2.1



3.ANALYSIS

Moisture analysis: Analyzed as 4-5% of overall powder that produced. Moisture content that have ability of causing spoilage in food product.

Shelf life study: Prepared protein rich powder was packed and sealed in an airtight container[6]. By observing change in color, flavor, appearance and odor through sensory analysis evaluated as an interval of 6 to 12 months

The Kjeldahl method : The Kjeldahl method was performed according to the method 981.10 of the AOAC international. 1 g of powder was hydrolyzed with 15 mL concentrated sulfuric acid(H₂SO₄) containing two copper catalyst tablets in a heat block at 420 degree Celsius for 2h. After cooling, H₂O was added to the hydrolysates before neutralization and titration[5]. The amount of total nitrogen in the powder were multiplied with both the titration conversion factor and species-specific conversion factors in order to determine total protein content.

4. Result and Discussion

Appearance: Shown as thin powder which is attractive as.

Consistency and viscosity: Showed as good quality in consistency and better in viscosity by consuming with nutrient milk.

Odour: Producing attractive odor. Combination of jackfruit seed powder and almond producing pleasant smell which is very attractive.

Flavor: Jackfruit seed giving a taste like chestnuts and almond flavor attributes can include overall intensity, fruity, marzipan (*benzaldehyde*), dark chocolate nutty, woody, toasty and earthy.

SENSORY ANALYSIS OF SAMPLES

Descriptor	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
	80:20	70:30	60:40	50:50	40:60
Appearance	59±16	59±17	28±24	72±12	28±24
Color	63±17	64±18	26±20	73±16	27±21
Odour	50±18	52±20	33±20	60±20	34±23
Consistency	60±20	60±21	30±20	42±25	33±25
Viscosity	35±17	36±18	10±11	80±15	11±10
Homogeneity	72±17	73±18	59±28	77±15	60±25
Flavor	60±20	60±22	37±26	76±17	36±25
Total quality	55±25	58±20	30±20	68±16	33±27

Table : 3.1

Examined the protein rich powder with jackfruit seed and almond in the ratio of 80%, 70%, 60%, 50% and 20%, 30%, 40%, 50% and 60% respectively. By sensory analysis it observed as a sample 2 (70:30 ratio) is the best one. It proving the best appearance, color, consistency, viscosity, flavor and total quality.

5. CONCLUSION

Being strong and healthy in our life period is a major thing. Proteins are playing a major role in this. Consuming proper protein through our daily intake is very toughest work. By consuming a protein rich powder through nutrient may helpful for good weight and healthy body. Considering developed and developing countries people may or may not be select a protein rich powder in their daily intake for a healthy life period. Introduced a protein rich powder which is good and essential for our body and can intake for 2 times with nutrient milk. It is also consumable with hot water but for good flavoring milk is better than that of water. It can also be consider as a baby food-easily consumable and digestible for babies.

6. REFERENCE

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