



## International Journal of Home Science

ISSN: 2395-7476  
IJHS 2017; 3(1): 346-349  
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www.homesciencejournal.com  
Received: 06-11-2016  
Accepted: 07-12-2016

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## Development and formulation of instant soup mix from sprouted horse gram and radish leaves

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### Abstract

Convenience is a multifaceted concept and often listed as the most important factor that determine the food of choice apart from the cost, health, sensory acceptability and related concerns. The present study was carried out with the objective to develop a instant soup mix from sprouted horse gram, Radish leaves powder, Onion powder, Garlic powder, Coriander powder, curry leaves powder, Pepper powder, and Salt in different ratios of the ingredients. The prepared product samples were evaluated for sensory evaluation quality and shelf life. When sensory qualities among different formulation were evaluated, sample S<sub>2</sub> got significantly higher values for appearance, colour, flavour and taste. Instant soup mix did not reveal any pathogenic organism when it is stored for 1month in laminated pouches under normal room condition. It gives us an idea about how much sprouted horse gram powder, Radish leaves powder and other ingredients should be incorporated to get the best soup mix of desired health benefits for controlling diabetes and without compromising on taste and odour. Preparation of this soup mix is so easy that it can be termed as convenient healthy soup mix.

**Keywords:** Sprouted Horse Gram, Radish leaves powder, Convenient, S<sub>2</sub>.

### Introduction

Increase in population and accumulation of industries in a particular area made more people to stay alone after education for employment. Less time is available for them to prepare food. Hence most of them consume what is available or food that requires less preparation time without considering the health benefits derived out of the food they consume. Hence an attempt is made to prepare a soup which requires less time for preparation without compensating on the health benefits

Instant soups play an important role in the balancing the nutrients required for the people to stay healthy and also it is easy to prepare with least time. The advantages of dehydrated foods, particularly, dry soup mixes could act as a protection from enzymatic and oxidative spoilage and flavour stability at room temperature over a long period of time. Also, they do not need any preservatives or refrigerator to preserve them. It has high nutritive value particularly it is rich in Fiber and Vitamin-C. In addition to that, they are ready for reconstitution in a short time.

As the formulation and development of complementary foods from locally and readily available raw materials have received a lot of attentions, the present research work aimed in preparing instant soup mixtures with Sprouted Horse Gram powder, Radish leaf powder and other ingredients which needs to be incorporated to get the best soup mix of desired health benefits and without compromising on taste, odorants and their sensorial properties.

### Health Benefits of Horse Gram

**Common Cold and fever :** It relieves congestion and makes breathing easy. It supplies required nutrients to boost body immunity to fight against fever and common cold.

**Weight Loss:** Horse gram is well known to reduce body fats which are root causes for obesity. The nutritional contents of these beans, like very little carbohydrate, more protein and fiber, contribute to weight loss.

**Diabetes:** Regular consumption of these beans helps to reduce blood glucose level

**Constipation:** The fiber content of horse gram helps to relieve constipation and ease bowel movement.

**Health Benefits of Radish Leaves**

**Helps to Prevent Diabetes:** Radish leaves have many properties which helps to reduce blood sugar levels. Thus, radish greens are one of the most important foods to be included in the diet chart for the diabetic patients.

**Essential Vitamins and Minerals:** The green parts of a radish contain more nutrients than the entire radish itself. They provide a nutrient rich diet and also some important minerals like iron, calcium, folic acid, vitamin C and phosphorous that is essential for many bodily functions.

**Increases Immunity and Reduces Fatigue:** Radish leaves are rich in minerals like Iron and phosphorous, which increases the immunity. They also contain other essential minerals like vitamin C, vitamin A, and thiamine.

**Treats Piles:** Radish leaves help to decrease swelling and inflammation. Powdered dry radish leaves mixed with equal amount of sugar and water can be mixed to form a paste. This paste can either be eaten or topically applied to the inflammation.

**Objectives**

- To study the important properties and benefits of radish leaves and sprouted horse gram.
- To prepare the instant radish leaves and sprouted horse gram soup mix.
- To assess the sensory parameters of the developed Products.
- To find out the microbial analysis of Selected Sample.

**Methodology**

Development of Instant Soup mix from Radish leaves and Sprouted Horse gram soup mix is discussed under the following heading:

- 1 Collection of Sample
- 2 Standardization of developed products
- 3 Formulation of Instant Soup mix
- 4 Sensory Evaluation
- 5 Microbial analysis

**Collection of Sample**

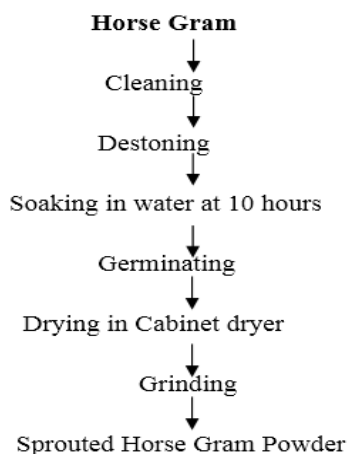
The fresh radish leaves and Horse gram were collected from Local market at Virudhunagar. The Horse gram was obtained and the germination process was carried out to get sprouted horse gram and finally dried in the cabinet dryer.

**Standardization of Radish leaves and sprouted horse gram soup mix**

**Table 1**

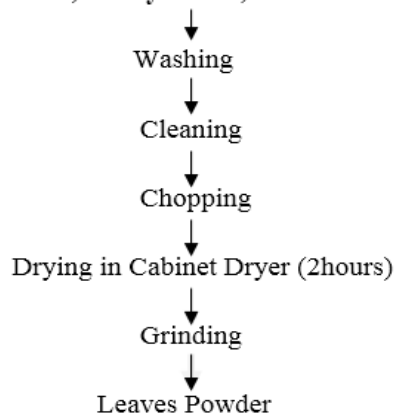
Ingredients	Control	Sample A	Sample B
Sprouted horse gram powder	25	25	25
Radish Leaves Powder	—	6.25	12.5
Garlic Powder	5	5	2.5
Onion Powder	5	5	2.5
Coriander Powder	5	2.5	1.25
Curry leaves powder	5		1.25
Pepper Powder	2.5	2.5	2.5
Salt	2.5	1.25	2.5

**Development of soup mix powder**



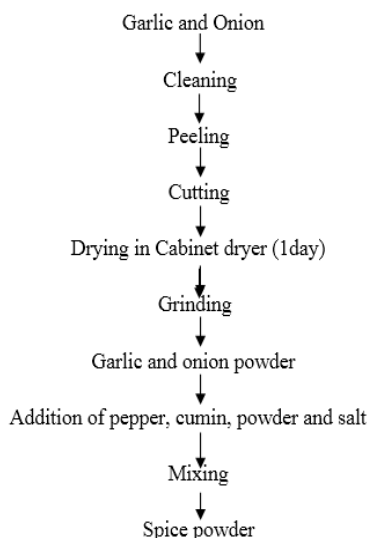
**Flow chart 1**

**Radish leaves, Curry leaves, coriander leaves**



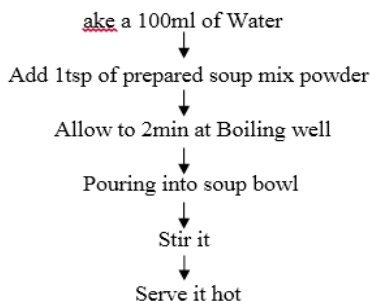
**Flow chart 2: Leaves Powder Preparation**

**Spice Powder Preparation**



**Flow chart-3**

**Formulation of Prepared instant soup mix**



**Flow chart 4**

**Sensory Evaluation**

The value added convenient soup mix samples along with control were given to the panel members for organoleptic evaluation. Ten panel members assessed for the acceptability of the value added soup mix.

**Microbial Analysis**

As the part of study, the shelf life is analyzed for the soup mix powder. Microbial analysis is very important to ensure the safety of the product.

**Table 3**

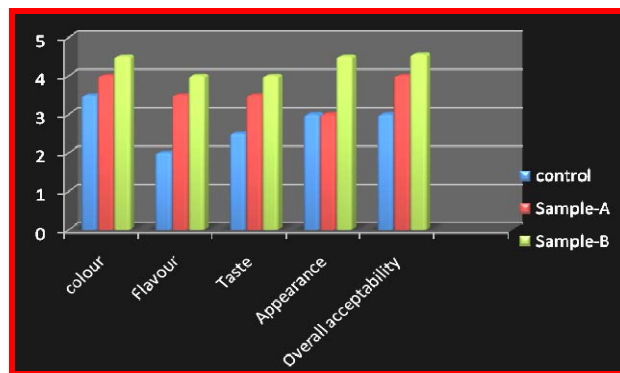
S.no	Name of the sample	Dilution Factor	No of initial Colonies	No. of colonies after 1 month	CFU/ml	
					Initial	1month
1	control	10 <sup>3</sup>	No	No	-	-
2	sample	10 <sup>3</sup>	No	No	-	-

Microbial analysis was carried out in the soup mix for 30 days to identify the development of bacterial colony. During this analysis, there was no microbial growth in the initial stage and also after one month period. Results of this analysis available in Table.3 proved that there is no need of special preservatives or refrigeration to preserve the soup. It is enough to store in air tight containers at room temperature.

**Conclusion**

The major objective of this research is to identify an instant food which is easy to prepare and provides all nutrition

**Results and Discussion**  
**Sensory Evaluation**



**Fig 1**

It is clear from the above chart (Fig.1) that the formulated product Sample B gained a higher score compared to the other two mixtures. Sample B scored as the best with the overall acceptability mean score. Hence, Sample B was chosen for further storage studies.

The developed Product was evaluated for the sensory attributes like appearance, colour, flavor, taste, overall acceptability by the selected Panel members. To value added convenient soup mix samples along with control were given to the panel members for organoleptic evaluation. Finally ten panel members were assessing the acceptability of the Value added soup mix.

**Table 2:** proves that the Sample B is most acceptable sample, with highest average overall acceptability score of 4.7±0.18

Sensory Attributes	Control	Sample-A	Sample-B
Colour	3.5±0.17	3.8±0.17	4.1±0.17
Flavour	3.8±0.20	3.5±0.19	4.6±0.15
Taste	3.6±0.18	3.7±0.2	4.4±0.23
Appearance	3.6±0.13	3.8±0.3	4.6±0.15
Overall Acceptability	3.7±0.2	4.1±0.18	4.7±0.18

**Microbial Analysis**

Microbial analysis is important to find out the shelf life of developed soup mix powder and there by ensure the safety of the Product.

required for a healthy living. This instant soup mix prepared using sprouted horse gram, Radish leaves powder, Onion powder, Garlic powder, Coriander powder, curry leaves powder, Pepper powder, and Salt is easy to prepare and it doesn't require a special preservation technique since growth of bacteria colony is nil even after 30 days when it is stored in room temperature or in refrigerator. It can be stored in an air tight container. The ingredients used are effective towards controlling of diabetes.

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