

Original Research

Product Development And Acceptability of Horse Gram Chikki For Weight Control Among The Obese Adult

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ABSTRACT

Horse gram is a type of pulse (legume). Its scientific name is Macrotyloma uniflorum. It is a highly nutritious food that contains important nutrients such as protein, dietary fibre, iron, calcium, antioxidants, and vitamins. Horse gram provides many health benefits. It helps in weight loss, improves digestion, and controls blood sugar levels, which is beneficial for people with diabetes. It also supports heart health by reducing cholesterol levels and life style disease. In traditional medicine, horse gram is used to help manage conditions like kidney stones, cold, cough, and asthma because of its warming properties. Thus, horse gram is a healthy pulse that helps in maintaining overall health and preventing certain diseases. The present study was undertaken for phytochemical analysis of horse gram and peanut. So, the present study endings revealed that the highest value of Phytochemical and was recorded.

Key words: Horse gram, Macrotyloma uniform, phytochemicals life style disease.

1.INTRODUCTION

The United Nations has declared 2016 as the International Year of Pulses. Pulses are narrowly defined as leguminous crops that are harvested as dry seeds. Although some pulse crops are harvested green (e.g., green peas), these are classified as vegetables because the pods are often consumed along with the mature and sometimes immature seeds. Other dried legumes such as soybean and peanut meet the definition of being a leguminous crop that is harvested as dry seeds; however, these crops are grown primarily for oil content and, thus, are not categorized as pulses. There are hundreds of pulse varieties grown worldwide; these include, for example, dry edible beans, chickpeas, cowpeas, and lentils. This review will cover the proximate (e.g., protein, carbohydrates, vitamins, and minerals), and phytonutrient (e.g., polyphenolics and carotenoid) composition of dry edible beans, peas, lentils, and chickpeas. Soybean and peanuts will not be covered in this review. The effects of processing on composition will also be covered. The health benefits related to folates, fibre, and polyphenolics will be highlighted. The health benefits discussed will include cardiovascular disease, cancer, diabetes, and weight control. The current review will not cover antinutrient compounds; this topic will be covered in a separate review article published.

Peanut is an important oilseed and legume crop with global relevance to food and nutritional security in addition to source of income to millions of stallholder farmers of the Sub-Saharan Africa and Asia. Low genetic diversity in cultivated gene pool and ploidy differences between different gene pools have been the two important genetic bottlenecks hampering use of molecular breeding approaches for peanut improvement. Nevertheless, recent advances in genomics research have elevated the status of peanut from “resource-poor” to “genomic resource-rich” crop and therefore, it is an obligation to the peanut research community across the world to adopt a holistic approach including use of genomics information and tools in crop improvement programs. In this context, this book provides up-to-date information on the progress made in last 5 years in peanut genomics with a particular focus on the latest genomic findings, tools, and strategies employed in genome sequencing, transcriptomics, trait mapping, and molecular breeding approaches. This chapter by providing an overview of the contents of the book presents a big picture on the status of peanut genome and allied information and its potential applications

for peanut improvement. Same Rajeev K Varshney, Manish K Pandey, Naveen Puppala

Horse gram is an underutilized pulse crop grown in wide range of adverse climatic conditions. It occupies an important place in human nutrition and has rich source of protein, minerals, and vitamins. Besides nutritional importance, it has been linked to reduced risk of various diseases due to presence of non-nutritive bioactive substances. These bioactive substance metabolic and/or physiological effects. The importance of horse gram was well recognized by the folk/alternative/ es such as phytic acid, phenolic acid, fibre, enzymatic/proteinase inhibitors have significant traditional medicine as a potential therapeutic agent to treat kidney stones, urinary diseases, piles, common cold, throat infection, fever etc. The inception of nutraceutical concept and increasing health consciousness the demand of nutraceutical and functional food is increased. In recent years, isolation and utilization of potential antioxidants from legumes including horse gram are increased as it decreases the risk of intestinal diseases, diabetes, coronary heart disease, prevention of dental caries etc. Keeping in view the increasing demand of food having nutraceutical values, the present review ascribed with recent scientific knowledge towards the possibilities of exploring the horse gram, as a source of food and nutraceuticals compounds. C. Saroj Kumar Prasad, Manoj Kumar Singh Journal of food science and technology 52 (5), 2489-2499, 2015

Objectives

- To develop the value added chikki using peanut and horse gram
- To standardize the value-added peanut horse gram chikki
- To Analyse Statistical value of value added chikki.
- To Screen the Phytochemical components of the selected standardized value added chikki.

2. REVIEW OF LITERATURE

2.1 Horse gram

Horse gram is an underutilized pulse crop grown in wide range of adverse climatic conditions. It occupies an important place in human nutrition and has rich source of protein, minerals, and vitamins. Besides nutritional importance, it has been linked to reduced risk of various

diseases due to presence of non-nutritive bioactive substances.

2.1.1. NUTRITIVE VALUE WAS HORSE GRAM

Horse gram is a highly nutritious, iron rich and high protein (22-25g per 100g). Legume is ideal for weight loss and managing diabetes due to its low fat and high fiber content

2.1.2. Health Benefits of horse gram

Remains an important food crop in certain regions of India due to its Nutritional value and health benefits. It also describes the nutritional value and health benefits. It also describes the nutritional composition and medical properties of horse gram a legume rich in essential nutrients, antioxidants, anti-inflammatory compounds. Its low glycemic index, high fiber content and diuretic properties make it effective in weight loss regulating blood sugar level, improving digestion. Horse gram an underutilized pulse with a rich history in traditional medicine, stands out for its diverse nutraceutical benefits. Esteemed for its efficacy in addressing health issues ranging from respiratory conditions to gastrointestinal disorders, kidney stone, and anthelmintic needs, horse gram offers a myriad of therapeutic potentials often overlooked.

2.2 Peanut

Peanut is an important oilseed and legume crop with global relevance to food and nutritional security in addition to source of income to millions of stallholder farmers of the Sub-Saharan Africa and Asia. Low genetic diversity in cultivated gene pool and ploidy differences between different gene pools have been the two important genetic bottlenecks hampering use of molecular breeding approaches for peanut improvement. Nevertheless, recent advances in genomics research have elevated the status of peanut from “resource-poor” to “genomic resource-rich” crop and therefore, it is an obligation to the peanut research community across the world to adopt a holistic approach including use of genomics information and tools in crop improvement programs

2.2.1. Nutritive value of peanut

Peanuts are highly nutrient dense offering a significant source plant-based protein, healthy monounsaturated fatty acids and essential nutrients

2.2.2. Health Benefits of Peanut

Peanut is one of the most widely used legumes due to its nutrition and taste, and it occupies a rank as a major oilseed crop in the world. It has been recognized as a functional food due to its

role in a health-promoting effect. Peanut oil contains a well-balanced fatty acid and antioxidant profile that provides protection against harmful substances, especially free radicals. This paper gives an overview of scientific literature available on phytochemical and functional properties of peanut oil. Owing to its unique organoleptic properties associated with its cardio protective and anti-inflammatory properties.

3.METHODOLOGY

3.1 Development and standardization of value added chikki

Value added chickees were developed by following the trial. And error method. For this study three different samples such as sample A, Sample B, Sample C, were developed by using peanut in the ratio of 35%, 40%, 45%and horse gram powder in the ratio of 5%, 10%, 15%, respectively. Developed value added chikki were subjected to sensory evaluation to find out the overall acceptability of the sample. Control was prepared by using peanuts. Table1 Shows the ingredients used for development of value added in varying proportion.

Different proportions of ingredients used for the development of value added chikki.

Table: 1

Ingredients	Control	Sample A	Sample B	Sample C
Peanut	50g	45g	40g	35g
Horse gram	-	5g	10g	15g
Jaggery	50g	50g	50g	50g

3.3. Development of value added chikki

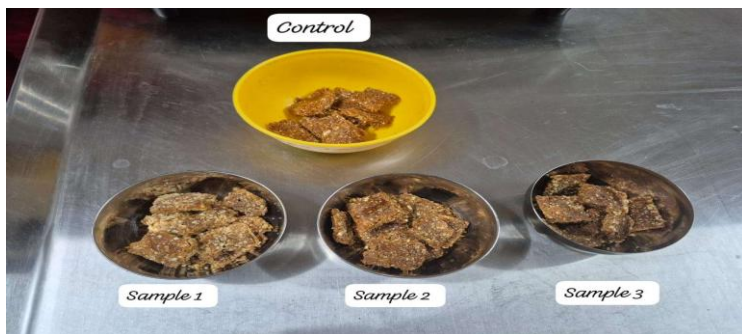


FIGURE 1: Developed value added chikki

3.4. Sensory evaluation and statistical analysis of developed value-added food product

Sensory evaluation refers to the assessment of food quality using human sensory organs. The sensory attributes of value-added chikki were evaluated by a panel of 10 semi-trained members using a 5-point hedonic scale to determine the overall acceptability of both the sample and the standardized product. The panelists were asked to assign scores separately for colour, flavour, texture, taste, and overall acceptability. The scores for all attributes were compiled and analyzed to identify the best sample among the three variations and the control.

3.5 Phytochemical Screening of the Selected Standardized Value Added Food Products

Phytochemicals are non-essential bioactive compounds present in plants that possess protective and disease-preventing properties. The presence of various phytochemical constituents in the sample was screened using standard procedures as described by Ayoola G. A. (2008).

3.5.1 Test for Saponins (Foam Test)

A volume of 2 ml of the extract was mixed with 2 ml of distilled water and shaken thoroughly. Subsequently, 1 ml of olive oil was added. The formation of a stable foam indicates the presence of saponins.

3.5.2 Test for Flavonoids (Lead Acetate Test)

To 3 ml of the extract, a few drops of lead acetate solution were added. The formation of a yellow precipitate confirms the presence of flavonoids.

3.5.3 Test for Steroids

To 2 ml of the extract, chloroform was added, followed by the careful addition of 2 ml of concentrated sulphuric acid along the sides of the test tube. The appearance of a characteristic color change indicates the presence of steroids.

3.5.4 Test for Tannins (Ferric Chloride Test)

A volume of 1 ml of the extract was treated with 2 ml of 5% ferric chloride solution. The development of a dark blue or greenish-black coloration indicates the presence of tannins.

3.5.5 Test for Terpenoids

To 2 ml of the extract, a few drops of copper acetate solution were added. The formation of a deep bluish-green color confirms the presence of terpenoids.

3.5.6 Test for Phenolic Compounds

A volume of 2 ml of the extract was treated with 5% ferric chloride solution. The formation of a deep blue color indicates the presence of phenolic compounds.

3.5.7 Test for Glycosides

To 2 ml of the extract, glacial acetic acid and a few drops of ferric chloride were added. The formation of a brown ring indicates the presence of glycosides

4.RESULT AND CONCLUSION

4.1 Sensory Evaluation of the Value-Added Chikki

New product development required the integration of sensory attributes including products colour, flavour, texture, taste and overall acceptability with consumer attitudes and health biases. Sensory and attitudinal variables determine food preference, product purchase and food consumption (Drewnowski. A and Moskowitz, H.R.1985). Developed food products were standardized to achieve the desirable colour, flavour, texture, taste, appearance and overall acceptability.

Figure:2 Sensory Evaluation of the Value-Added Chikki

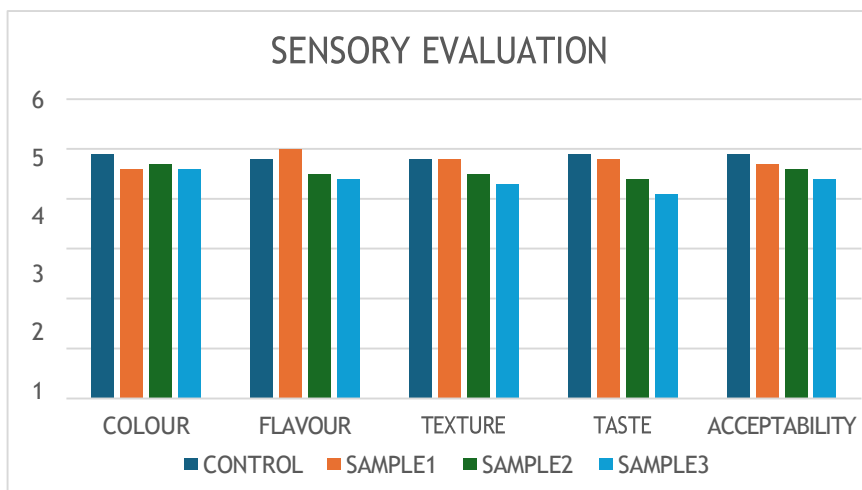


Table 2: Sensory Evaluation of the Value-Added Chikki

	Control	Sample1	Sample2	Sample3
COLOUR	4.5±0	4.6 ±0.4	4.7±0.2	4.6±0.4
FLAVOUR	4.8±0	5±0.2	4.5±0.6	4.4±0.5
TEXTURE	4.8±0	4.8±0.2	4.5±0.7	4.3±0.7
TASTE	4.9±0	4.8±0.2	4.4±0.4	4.1±0.6
ACCEPTABILITY	4.9±0	4.7±0.2	4.6± 0.4	4.4±0.4

4.2. Determination of phytochemicals present in the value added Chikki

The result and discussion of the study on phytochemical screening horse gram chikki are analysed under following headings.



Figure 2: Estimation of Phytochemical

Table 2: Estimation of Phytochemical

Phytochemicals test	Horse gram chikki
Tannin	-
Saponins	+
Flavonoids	-
Steroids	-
Glycogenesis	+
Phenolic compound	-
Terpenoids	+

5. Discussion:

Horse gram is a type of pulse (legume). Its scientific name is *Macrotyloma uniflorum*. It is a highly nutritious food that contains important nutrients such as protein, dietary fibre, iron, calcium, antioxidants, and vitamins. Horse gram provides many health benefits. It helps in weight loss, improves digestion, and controls blood sugar levels, which is beneficial for people with diabetes. It also supports heart health by reducing cholesterol levels and life style disease. In traditional medicine, horse gram is used to help manage conditions like kidney stones, cold, cough, and asthma because of its warming properties.

6. Conclusion

Horse gram is a highly nutritious pulse commonly used in Indian diet it is an especially beneficial for adult. Because it provides essential nutrients such as protein, dietary fibre iron calcium low fat nutrient plays a vital role in including improved digestion better heart healthy weight management and stronger bones.to promote healthier eating habits, chikki can be used as a healthy alternative snack for adult by incorporating. Horse gram into chikki. the nutritional value of the snacks as a result it can help improve adult weight management.

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