

Cajanus cajan, Linn: Nutritional Value, Uses and Health Benefits for Animals

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Abstract - Pulses or legumes are an integral part of Indian cooking, which forms a key component of a wholesome meal plan. These are the storehouses of good quality plant protein replete with a ton of health benefitting properties. One such dal that abounds with an extremely rich nutrient profile is toor dal or arhar dal. Pigeon pea is a tropical grain legume grown mainly in India. It is a staple food among several cultures and cuisines all through the length and breadth of India that also serves as a nutritious vegetarian meat alternative. Pigeonpea (Arhar) commonly known as red gram or tur is a very old crop of this country. After gram, arhar is the second most important pulse crop in the country. It is mainly eaten in the form of split pulse as 'dal'. Seeds of arhar are also rich in iron, iodine, essential amino acids like lysine, threonine, cystine and arginine. Pigeon pea is rich in starch, protein, calcium, manganese, crude fiber, fat, trace elements and minerals. Besides, its high nutritional value, pigeonpea is also used as traditional folk medicine in India, China, Philippines and some other nations. This paper focused on the nutritive value, uses and benefits for living beings.

Index Terms - *Cajanus cajan*, Linn., Nutritive value, Health benefits, Pulses, living beings etc.

I. INTRODUCTION

Nutrition is the most important basic need, being a major determinant of health, labour productivity, and mental development. In most developing countries of the world, hunger and malnutrition are increasing due to population explosion, shortage of fertile land, and high food prices. Legumes have been recognized for their nutritional importance because of high protein content, along with energy values and important vitamin and mineral content. Among legumes, Pigeon pea (*Cajanus cajan* L.) is predominantly grown and consumed in India. It is also known as red gram, arhar, tur dal which belongs to the family of Leguminosae.

It is a leguminous shrub that can attain a height of 5 m. Pigeon pea evolved in South Asia and appeared around 2000 BC in West Africa, which is considered a second major centre of origin. Leaves are trifoliate and spirally arranged on the stem. Flowers occur in terminal or axillary racemes, are 2-3 cm long and are usually yellow, but can be flocked or streaked with purple or red. Pods are flat, usually green in colour, sometimes hairy, sometimes streaked or coloured dark purple, with 2-9 seeds/pod. Seeds are, widely variable in colour and weigh 4-25g/100. While the major use of pigeon pea is in the dry split seed form (dhal); Pigeon pea pods and seed are harvested and eaten as a green vegetable in a number of countries.

II. NUTRITIONAL VALUE OF PIGEON PEA

Pigeon pea is an incredible source of proteins, carbs and dietary fibre needed for growth and development. Adding toor dal in diet helps to meet your demands of iron and calcium while being a good source of folic acids promotes foetal growth and averts congenital birth defects of the foetus. The essence of dietary fibre and protein in toor dal control hunger pangs, delays digestion, supports weight loss, regulates diabetes and diminishes cholesterol levels. Furthermore, vast reserves of vitamins and minerals like magnesium, manganese, phosphorus, potassium, sodium and zinc aids to enhance physical and mental well-being. According to the USDA (United States Department of Agriculture) the nutrition content in a serving or cup of toor dal is:

Calories -343 kcal
Total Fat 1.5g
Total Carbohydrate 63g
Protein 22g
Sodium 17mg
Potassium 1392 mg
Calcium 0.13mg

Iron 28 %
Magnesium 45%
Vitamin B6 15%

It is a powerhouse of proteins, providing essential amino acids to strengthen muscle mass and promotes growth and development. Additionally, being laden with dietary fibres and complex carbs, toor dal is an excellent food for shedding body fat and promoting weight loss. Palak comprises ample quantities of vitamin A, vitamin C, vitamin E, which boost skin and eye health. Being a rich store of iron palak helps to pump iron stores and treats iron deficiency anaemia.

III. IMPORTANT USES OF PIGEON PEA

- In Ayurveda, it is used as vulnerant that heals wounds and sores.
- It is also used as an astringent that is used to stop bleeding.
- It is also used to cure lungs and chest disease.
- It is used to eliminate the internal parasitic worms.
- In Nigeria, the leaves are used to treat.
- In Panamanian folk medicine, it is used as a treatment for diabetes.
- It helps to cure jaundice, cough and bronchitis.
- In Malay traditional medicine, leaves decoction helps to treat coughs, abdominal troubles and diarrhea.
- The juice extracted from leaves is helpful for earache and sores.
- In Java, the pulped leaves are used as a treatment for herpes, sores and itches.
- In China, the roots are used as a sedative, expectorant, anthelmintic and vulnerary.
- The roots are used to treat throat inflammation, diarrhea and chlorosis.
- A poultice is used to lessen swellings.
- In Philippines, a decoction made from leaves is useful for diarrhea, cough and abdominal pains.

IV. HEALTH BENEFITS OF PIGEON PEAS

Pigeon peas are an excellent source of magnesium, phosphorus, calcium and potassium. Besides, it contains fewer amounts of copper, zinc and magnesium. It provides an adequate amount of iron and selenium. The flattened shape pods hold a substantial place among pulses in India. The seeds

vary in shape, size and color. It is round or oval in white, brown, red, greyish or purplish with a white hylum. Few well-known advantages of Pigeon Peas are listed below:

1. Maintains blood pressure

Potassium is the key mineral which is found in pigeon peas that acts as a vasodilator, reduces the blood constriction and also reduces blood pressure. Those who suffer from hypertension should add pigeon peas to the daily diet because they are highly prone to the cardiovascular disease.

2. Assist in growth

Pigeon peas are also loaded with high protein content which is required for the growth and development. It is essential for the formation of cells, tissues, muscles and bones. It also assists in the healing process and cell regeneration in the body. One cup of cooked pigeon peas possesses 11 grams of protein.

3. Prevent anemia

Folate is found in adequate amount in pigeon peas which helps to prevent anemia and neural tube defects in unborn which is caused due to the deficiency of folate. The intake of single cup of pigeon peas provides about 110% of the daily recommended vitamins.

4. Anti-inflammatory properties

The seeds, leaves and peas of pigeon peas are used to treat inflammation due to the presence of organic compounds. The mashed pigeon peas paste is used as a treatment for piles which is known as hemorrhoids.

5. Helps in losing weight

Pigeon peas possess low amount of calories, cholesterol and saturated fats which makes it healthy. The presence of dietary fiber keeps full for a long period of time, increase metabolism rate and reduces the possibilities of weight gain. The nutrients found in pigeon peas converts into the usable energy than to store as a fat.

6. Boost energy

Vitamin B is also present in pigeon peas. Riboflavin and Niacin enhance the carbohydrate metabolism, prevent in fat storage and boost energy levels. It is suitable for the people living in arid climates, physical work that reduces the energy quickly.

7. Aids immunity

To maintain the nutrients, raw is better because 25% of nutrients are lost when cooked. The uncooked peas help to enhance the immune system. Vitamin C promotes the white blood cells production and acts as

an antioxidant that promotes in overall wellness as well as strong immunity.

8. Healthy heart

Pigeon peas contain dietary fiber, potassium and low cholesterol which help to maintain the healthy heart. Potassium lowers the strain on heart by reducing the blood pressure. Dietary fiber maintains cholesterol balance and prevents atherosclerosis.

9. Digestive health

Pigeon peas are rich in dietary fiber which is essential for maintaining the digestive health. Fiber adds bulk to the stool and enhances the bowel movements by reducing the strain as well as inflammation. It reduces the constipation, cramping, bloating and diarrhea. Fiber enhances the efficiency of nutrient absorption.

V. EDIBLE USES OF PIGEON PEA

- In India, pigeon pea is used as dhal.
- In other parts of Asia, seeds are used to make tofu.
- In Africa, dried seeds are used in sauces to accompany rice, cassava and yam.
- The immature seeds and pods are consumed fresh or added in soups as vegetables.
- In Central America, seeds of pigeon pea are canned and frozen.
- The seeds are used as flour dried peas and green vegetable peas.
- In India, the seeds are used as pulses whereas the young pods are used in sambhar.
- The fresh pods, young shoots and seeds are used as vegetables in sayor, spicy soups and other side-dishes in Southeast Asia and the Pacific.
- The young pods and leaves are added to various dishes in Indonesia and Ethiopia.
- The ripened seeds are consumed by roasting.
- The green pigeon pea with rice is considered as the main traditional food of Puerto Rican.

VI. CONCLUSION

Toor dal with a wealth of essential vitamins, minerals, proteins and antioxidants offers you umpteen healing health benefits. Adding toor dal in your meal plan is the simplest way to prevent obesity, lowers cholesterol, regulates blood pressure and blood sugar levels, reduces inflammation and fortifies bone health. This versatile dal melds well with all the ingredients

and can be prepared in a variety of ways, add them to your daily diet to reap the wellness incentives. The present review article aims at focusing the attention of research scholars on the unexplored and untouched areas related with *C. cajan* and may act as an important step towards the establishment of *C. cajan* (L) Millsp. As important nutritional as well as medicinal plant.

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