

GOVERNMENT DEGREE COLLEGE, SHADNAGAR



DEPARTMENT OF BOTANY

PROJECT WORK

THE GOODNESS OF GREENS



GOVERNMENT DEGREE COLLEGE, SHADNAGAR

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DECLARATION

We the following students studying B.Sc. I Yr. at Government Degree College, Shadnagar during the academic year 2021-22 here by declared that it is our original project work on Goodness of Greens submitted under the guidance of Dr. T. Uttara Phalguni.

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CERTIFICATE



This is to certify that

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Have successfully completed their project work on Goodness of Greens.


Signature of Supervisor


Signature of Principal
Principal
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The Goodness of Greens

Green leafy vegetables (GLVs) are vital for growth and good health as they contain all important nutrients. They are the rich source of vitamin A, vitamin C, folic acid and minerals like calcium, iron, phosphorus, sodium and potassium. In India a wide range of greens are consumed, the more popular ones being spinach, amaranth, fenugreek, drumstick leaves, mint etc.

GLVs are particularly rich in minerals like iron and calcium. Iron deficiency leads to anaemia a common health problem among pregnant and lactating women, adolescent girls and also children. Inclusion of GLVs in daily diet would help to prevent anaemia and promote good health.

GLVs are also a rich source of many vitamins including beta carotene and vitamin C. In India, thousands of children under five years of age go blind every year due to lack of vitamin A. Beta carotene in

GLUs get converted in the body to form vitamin A which prevents blindness. Green also contain some of the B-complex vitamins. The uncontrolled blindness. Green also contain some production of oxygen-derived free radicals is involved in the onset of many diseases such as cancer, rheumatoid arthritis, cirrhosis and arteriosclerosis as well as in degenerative processes associated with ageing. Green leafy vegetables are known to contain antioxidants necessary in neutralizing free radicals which are known human chemical hazards.

Nutritional content of Green Leafy veggies :-

1. Packed with vitamins - All leafy greens have an abundant store of nature's vitamins. However, kale, spinach, moringa, and cabbage are known for their superior vitamin content. You get a good amount of vitamin A, vitamin K, vitamin E, vitamin C, beta-carotene, folate, vitamin B₁, B₂, B₃, B₅ and B₆ from the vegetables.

2. High mineral content - minerals like iron, magnesium, potassium, zinc, calcium, phosphorus, and sodium can be added naturally to your diet by eating green leafy veggies. They help to maintain the daily requirement and overcome or deficiency of dietary minerals by providing an adequate amount of minerals in every bite.

3. Rich in dietary fibers :- Green leaves have good fiber content which makes you feel satisfied after you consume them. Fiber also provides various other health benefits.

4. Low-fat content - these leafy greens save you from consuming fats and lipids as they have nearly zero fat content.

Health Benefits of Green leafy vegetables :-

These veggies should be a compulsory part of your routine diet. They play an important role by helping you to recover from certain health conditions and illnesses like poor eyesight, mineral deficiencies, poor immunity, constipation, and even certain heart disease. Apart from these, green leafy vegetables are highly effective and beneficial for healthy skin and hair.

Leafy green vegetables help with your daily nutrient intake because they contain a multitude of macro and micronutrients that are necessary for the body. Similarly, here are some more health benefits of adding leafy greens to your regular diet.

1. Calories :-

One of the biggest benefits of consuming leafy green vegetables is that they are extremely low in calories when compared to other foods. Despite being low in calories they are often dense in nutrients, which is why they are a preferred food item in a weight loss diet.

2. Vitamin K :-

Leafy green vegetables are added to a weight loss diet because they contain a nutrient known as Vitamin K. This fat-soluble vitamin is extremely helpful in stimulating weight loss. Moreover, recent research also suggests that Vitamin K can help reduce inflammation, help combat diabetes, helps reduce plaque formation in the arteries, and can even help delay the onset of bone ailments like osteoporosis.

3. Disease prevention :-

Since leafy green vegetables are full of vitamins and minerals that are needed to both boost the immune system as well as maintain an overall healthy body, they have been known to help prevent certain diseases as well. For example mineral deficiencies like iron deficiency (anaemia), poor eyesight, weight troubles, signs of ageing, poor immunity, constipation, blood clotting, folate deficiency, weak bones, Cancer, heart disease, and high cholesterol.

4. Macronutrients :-

While leafy green vegetables may only be popular for being sources of vitamins and minerals (micronutrients), many of them even have sufficient quantities of macronutrients as well. Some leafy green vegetables have complex carbohydrates, fibre, protein, and even minute traces of fat. For example spinach being a classic dark green leafy vegetable provides 1g of carbohydrates and 1g of protein in each cup of serving.

5. micronutrients :-

Green leafy vegetables are best known for being rich source of micronutrients and this is one of the reasons most people do not add them sufficiently to their daily diet. Although micronutrients may be required in lower quantities in the body, they play a major part in helping boost the immune system and several other functions of the body. Green leafy vegetables contain essential micronutrients like beta-Carotene, luffin, and zeaxanthin. these can help prevent damage to the cells of our body and even enhance eyesight.

1. Spinach :-

Spinach (*Spinacia oleracea*) is a leafy green flowering plant native to central and western Asia. Raw spinach is 91% water, 4% carbohydrate, 3% protein, and contains negligible fat. It is a rich source of vitamin A, vitamin C, vitamin K, magnesium, manganese, iron and folate. Spinach is rich in several minerals that your body needs, including potassium. Consuming foods that are high in potassium helps lower your blood pressure. Spinach is an excellent source of lutein, an antioxidant known to protect against age-related eye diseases such as macular degeneration and cataracts. Eating just one cup of spinach fulfills the recommended daily amount of vitamin K, our body needs for bone health and growth. Spinach is an excellent source of iron, which helps our body make haemoglobin.



2. Amaranthus viridis :-

Amaranthus leaves are a storehouse of essential phytonutrients and antioxidants which help to reduce inflammation in the body and provide an extra boost of nutrition to one's health. Highest amount of protein, vitamin A, iron and sodium are found in *A. viridis*. Amaranth leaves contain high amounts of protein, calcium, iron, zinc, and essential amino acids that the body can use for growth. Amaranth leaves also maintain the level of cholesterol in your bloodstream since they have zero cholesterol content.

Amaranthus viridis is used as traditional medicine in the treatment of fever, pain, asthma, diabetes, dysentery, urinary disorders, liver disorders, eye disorders and venereal disease. The plant also possesses - anti-microbial properties.



3. Basella alba :-

The edible leaves are 93% water, 3% carbohydrates, 2% protein, and contain negligible fat (table). In a 100 gram reference amount, the leaves supply 19 calories of food energy, and are a rich source (20% or more of the daily value) of vitamins A and C, folate, and manganese, with moderate levels of B vitamins and several dietary minerals. The leaves are a good source of vitamin A and C, calcium, potassium and iron, with many other vitamins and minerals in lower quantities. It has over 3 times more vitamin A than spinach, and over 1.5 times more vitamin A than kale. The essential amino acids present in it are Arginine, Leucine, Isoleucine, Lysine, Threonine and Tryptophan. Hence, it is used for checking malnutrition in children. The mucilage present in *Basella alba* is reported to have hypoglycemic activity. It has been attributed with gastro-protective activity, ulcer healing, anti-inflammatory activity, wound healing activity. Decoction of the leaves is recommended as

a safe laxative in pregnant women and children.
Externally, the mucilaginous leaf is crushed and applied
in urticaria, burns and scalds.



4. Moringa :-

Moringa has many important vitamins and minerals. The leaves have 7 times more vitamin C than oranges and 15 times more potassium than bananas. It also has calcium, protein, iron, and amino acids, which help our body heal and build muscle.

It's also packed with antioxidants, substance that can protect cells from damage and may boost your immune system. There's some evidence that some

of these antioxidants can also lower blood pressure and reduce fat in the blood and body.

Leaf extracts slowed the growth of pancreatic cancer cells and helped chemotherapy work better. Studies show that moringa leaves, bark, and roots all have anti-cancer effects.



5. Aerva lanata :-

Aervalanata, the mountain knotgrass, is a woody, prostrate or succulent, perennial herb in the family Amaranthaceae. Aervalanata is commonly described in Ayurveda as a diuretic with anti-inflammatory, antihelmintic, anti-bacterial and as an antidote for rat poisoning. Alkaloids, terpenoids, and mild analgesic effects. It is used in the

in the treatment of lithiasis, cough, asthma, and headache and as an antidote for rat poisoning. Alkaloids, terpenoids, Sterols, several flavonoid glycosides and polyphenols had been isolated from Aervalanata. It is especially well known for treating all kidney problems and has been traditionally used for treating kidney stones, it is also well known for treating headaches, painful urination and it is also a wonderful natural deworming medicine. Aervalanata possess wonderful antioxidant properties. Aervalanata lower blood sugar levels and internal consumption will have a positive impact on diabetic patients. Aervalanata extract has been proven to be effective for treating asthma. It is common practice to give water decoction of the plant to treat asthma traditionally. The water decoction of the plant treats diarrhoea. Aervalanata has amazing nephrology protective properties consuming Aervalanata extract reduce elevated blood urea and serum creatinine levels so it is good for people suffering from kidney diseases



6. Punarnava :-

Punarnava (*Boerhavia diffusa*) is a perennial, straggling herb, with stem tallness up to 60 cm, the herb has a straight and thick taproot with a much-branched stem. The plant has gained popularity in India for its medicinal merits.

Benefits of punarnava :-

- The various formulations of punarnava showed diuretic and anti-inflammatory properties.
- The decoction of punarnava root is used as an analgesic used to treat coughs, depressants for CNS, laxative.
- punarnava has been very useful in treating the patients suffering from nephrotic syndrome; the mechanism involved shows the increased serum protein level, followed by a reduction in urinary protein excretion.

- ⇒ The leaves of punarnava has been used in vegetable preparations, which tends to show a reduction in edema.
- No doubt about the punarnava, which is majorly known for its anti-endemic property, but it also has potential cardioprotective action due to which it protects the damage of the heart.
- ⇒ punarnava is nephroprotective; it improves kidney function by reducing the urea and creatinine levels in the blood. It further helps to reduce kidney stone problems.
- ⇒ punarnava reduces bilirubin level to prevent jaundice.
- punarnava is beneficial in maintaining blood sugar levels. The mechanism involves reducing the starch breakdown into glucose and thereby preventing the reduction of blood sugar.
- ⇒ The bioactive compounds present in the extracts of punarnava help prevent body weight gain and it helps reduce the cholesterol level in the blood.
- Due to a mild laxative property of punarnava is a mild laxative, it helps in flushing out toxins from the body without the loss of essential nutrients and minerals.



7. Methi - Fenugreek

Fenugreek leaves are one of the healthiest green leafy vegetables. This versatile herb is from the legume family. It has been used in cuisines as a flavouring agent for decades. In addition, it is a widely used spice in multiple cuisines globally. They add a mild and aromatic bitter-nutty flavour to curries and stir-fries.

Moreover, every part of the plant is equally nutrient-dense. The fenugreek seeds are also quite similar to the leaves. The high point of these leaves in their health benefits. They are surprisingly nutritious and innumerable. Also, they are beneficial for women with polycystic diseases, PCOS. Research suggests that fenugreek is helpful for the heart, diabetes, skin - and hair health.

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A rich source of calcium, dietary fibre, phosphorus, manganese and magnesium, fenugreek leaves also have antioxidant properties. They will promote the development of breast milk in new mother and increase testosterone levels in men. As well as lowering cholesterol, indigestion and inflammation, they also help regulate the appetite and blood sugar levels. Fenugreek may have potential anticarcinogenic qualities. The saponins in fenugreek inhibit cancer cell growth. The study reveals that it may be effective in colon and prostate cancer. Moreover, they have shown remarkable cures in leukaemia and bone cancer.



8. MINT :-

- mint is a perennial herb with very fragrant, toothed leaves and tiny purple pink, or white flowers.
- ⇒ mint leaves are packed with antioxidants and phytonutrients and contains vitamin A, vitamin C and B-complex, phosphorous calcium, and has anti-bacterial properties.
- It is one of the rich source of iron, potassium, and manganese which improves haemoglobin levels and promotes brain function
- mint leaves are low in calories and contain a minimal amount of protein and fat so you can add mint leaves in your weight loss diet program easily. mint oil contains a compound called menthol which gives relaxing effects on the muscles of the digestive tract.
- mint leaves are brain tonic. According to various studies consuming mint may up alertness and cognitive functions. mint leaves can improve memory power and mental alertness.

Mint leaves extract is useful to treat and prevent acne. The richness of menthol and natural antioxidants in mint leaves are used as an amazing cleanser, toner, astringent and moisturizer for the skin. Mint leaves tones the skin softens dry and itchy skin, mint is full of vitamins

help to protect your cells from damage. Also, mint leaves can prevent tumour formation by inhibiting some enzymes.



9. MURAYYA KONEIGII :-

The Curry tree *Murayya Koneigii*, belongs to the family Rutaceae. This tree is native to India, and its leaves are used for both medicinal and culinary applications. They're highly aromatic and have a unique flavour with notes of citrus. Curry leaves are rich in protective plant substances, such as alkaloids, glycosides, and phenolic compounds, that give this fragrant herb potent health benefits. Curry leaf extract has been shown to provide potent antioxidant effects in several studies. Studies have demonstrated that curry leaves contain substances

that may help protect against neurodegenerative conditions like Alzheimer's disease. Curry leaves contain compounds that have significant anticancer effects. Curry leaf extract may help reduce high blood sugar levels and protect against symptoms related to diabetes, including nerve pain and kidney damage.

Packed with a multitude of nutrients like carbohydrates, fiber, calcium, phosphorus, iron, magnesium, zinc, multivitamins and flavonoids, curry leaves are an array of health benefits. It is extensively used in the treatment of anemia, diabetes, indigestion, obesity, kidney problems, hair and skin problems.

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Curry leaf extract may help reduce high blood sugar levels and protect against symptoms related to diabetes, including nerve pain and kidney damage.

Curry leaves contain a wide array of anti-inflammatory compounds, and animal research has shown that curry leaf extract can help reduce inflammation-related genes and proteins.



10. Alternanthera sessilis :- [Ponnaganti aaku]:-

Alternanthera sessilis (Ponnaganti) belongs to the family Amaranthaceae. It is an erect, ascending, or creeping perennial herb. It is often widely branched, with a robust taproot. The leaves are simple, opposite, somewhat fleshy, lanceolate, oblanceolate or linear-oblong, obtuse or subacute, sometimes obscurely denticulate, glabrous, shortly petiolate. The flowers are small, white, in axillary clusters and the fruits compressed orbiculate utricle, seeds suborbicular, sessile. Joyweed is often harvested from the wild for local use as a food and medicine.

- young shoots and leaves of *Alternanthera sessilis* are boiled and used as a vegetable. It is used in salads, soups and cooked as a potherb.
- *Alternanthera sessilis* is utilized for hair growth, stomach trouble, to increase the flow of milk in mother.
- The juice of the root is used in the treatment of dysuria, fevers, and bloody dysentery.
- The whole plant is used as a remedy against intestinal cramps, fever, diarrhoea, and dysentery.
- *Alternanthera sessilis* is used as a part of mixtures with other medicinal plants, to treat hepatitis, tight test, bronchitis, asthma, and lung troubles, to stop bleeding, and as a hair tonic.

- It is used to promote intellect, as an eye washer, to reduce the temperature, and to treat anemia, insect bites, snake bites, and constipation.
- The juice of the plant is used to treat white discharge in the urine.
- *Alternanthera sessilis* is eaten to treat menstrual disorders.
- The shoots of the weed are mixed with other ingredients to improve male sexual potency. The weed is sometimes used topically to treat acne.
- *Alternanthera sessilis* is used to treat stomach pain and greying of hair and gonorrhoea.

