



Spinach (Palak) Natural Laxative

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ABSTRACT

Man is said to be a frugivorous human and a frugivorous human is generally defined as one that lives on fruits (which will include vegetables). There are many weighty reasons for according a preeminent position to leafy vegetables in the human dietetics. The leaf, so to say, is the laboratory of the plant. Almost everything that is needed by different parts of the plant is manufactured here. Scientifically it is known as *Spinacia oleracea* Linn. (Family-Chenopodiaceae). The Spinach used as a food and has medicinal value also. Spinach bundled up with vitamins such as vitamin A, vitamin B, vitamin C and vitamin E and minerals like magnesium, manganese, iron, calcium and folic acid. Spinach is great source of chlorophyll, which speed up digestion. SPINACH (*Spinacia oleracea*) Spinach comes originally from northern Asia and is mentioned numerous times in the holy Bible. During the 16th century, it was introduced into central Europe. It is a short season herb and, as the plants are hardy, it may be successfully sown as soon as the ground can be worked. The chief chemical constituents of spinach are Essential Amino Acid, Iron, Vitamin A and folic acid. Eating fresh spinach daily supplies the required quantity of iron, vitamin A and Folic acid. Leaves contain almost all the vitamins and are the richest source of carotenoids, beta-carotene and lutein. Carotene from which we get vitamin A. They contain also almost all the minerals and are one of the richest sources of iron. In fact, leafy vegetables, taken with cereals, improve the protein quality of the latter, by providing the amino acid components of protein which are deficient in cereals.

Keywords- *Spinacia oleracea*, Spinach, Flavonoids, Antioxidant.

INTRODUCTION

Spinach, a green mess, soft and soggy and a thing to be avoided. That's unfortunate. Spinach is a member of the goosefoot family, and many of its relatives are weeds. Most of us remember overcooked, because it is a nutritious food when eaten raw or lightly steamed and it actually tastes good. (Lee, 1982), *Spinacia oleracea* is commonly known as Spinach (English), Apodika or Palaka (Sanskrit), Palak-ki-sag (Hindi, Urdu, and Dak.), Basalay-Soppu (Kan.), Asfanaq (Arab, Pers.), Vasolekiray (Tam.), Dumpa or Mathur Bachhale (Tel.), Vasala-Cheera (Mai.), Phalanga-Saga (Ori., Beng.). *Spinacia oleracea* Linn. (Kline & Aman, 1969)

Spinach has been found valuable for constipation (Kumar et. al., 2013), dyspepsia (chronic indigestion), anemia (Bassey & Khan, 2015), neuritis, nerve exhaustion, tumors, insomnia, arthritis, obesity, high blood pressure and bronchitis. It has also helped ailments of the kidney, bladder and liver (Joseph, 1975). Spinach is one of the foods with ample iron (Hanif et. al., 2006). In addition, spinach contains choline and inositol, the substances that help to prevent arteriosclerosis, or hardening of the arteries (Kar & Borthakur, 2008). Spinach is a good source of Vitamin K (Hanif et. al., 2006), which aids in the formation of the blood substance required for clotting of blood (Kadans, 1975; Robinson, 1990).

Spinach has been shown to be helpful with protecting the central nervous system (Lomnitski et. al., 2003), reducing **inflammation** and delaying the aging process by protecting cells (Cruess, 1958). Spinach is beneficial source for various carotenoids and lipophilic active compounds (i.e., neoxanthin, lutein, zeaxanthin, and chlorophylls). Dietary intake of spinach extract has been reported to have beneficial effects on various types of cancer, such as

ovarian, lung, prostatic, breast, and colon (Lomnitski et. al., 2003).

Spinach contains special protective carotenoid compounds that have been linked with decreasing the risk of many diseases, including heart disease (Miller, 1994; Gaikwad et.al., 2010; Diet and Health, 2014) diabetes (BMJ 2010), neurodegenerative diseases and obesity (Miller, 1994). Spinach's phytonutrients include such carotenoids as beta-carotene, lutein, and zeaxanthin, the same types of antioxidants found in other vegetables like carrots, kale, and broccoli (Hugo et. al., 2005). Spinach also supplies flavonoids, which are a type of powerful antioxidant (Pemberton et. al., 1991) that protect against disease by fighting **free radical damage** within the body (Miller, 1994). These protective compounds make spinach one of the best **anti-aging** foods (McKeowyn-Eyssen et. al., 1994; Miller, 1994).

ORIGIN AND DISTRIBUTION

The Spinach is believed to have been first cultivated by the Arabs. The Persians cultivated it about 2000 years ago. (Bakhru, 2001). It was introduced into Europe in the eleventh century and thenceforward, it gradually spread all over the world. The Moors or the blacks took it to Spain from where it spread to other parts of the world. The word spinach actually comes from a Spanish word *hispania*. In India it grows in great abundance. This crop thrives best in cooler and moist climate. High humidity and cool temperature are conducive to the rapid growth of succulent, tender foliage.

PLANT DESCRIPTION

The spinach is a leafy vegetable with broad, crisp, dark green leaves and is the most popular of all greens. It is a quick maturing, cool season annual crop and is cultivated for its green leaves. The leaves are alternate, succulent, fleshy, very smooth

and dark green in colour. They are generally five to eight cms. in length and one to one and half cms. in width. The bottom of the **CLASSIFICATION (Botanical description)**

leaf is shiny, with thick veins running across.

Official Latin Name: *Spinacia oleracea*
 Botanical: *Spinacia oleracea* (LINN.)
 Scientific Name: *Spinacia oleracea*
 Common name: Spinach
 Family: Amaranthaceae, N.O. Chenopodiaceae
 Genus: *Spinacia*
 Species: *oleracea*
 Flowering time: Late spring to early autumn.

FOOD VALUE (CHEMICAL CONSTITUTES)

The spinach is highly esteemed for its high mineral and vitamin content. Its other values are not so significant.

| Food Value of spinach | | | |
|-------------------------------------|-------|-----------------------------|------|
| Moisture | 92.1% | Fibre | 0.6% |
| Protein | 2.0% | Carbohydrates | 2.9% |
| Fat | 0.7% | | |
| Minerals | 1.7% | | 100% |
| * Values per 100 gms edible portion | | Calorific Value - 17 | |

| Minerals and Vitamins | |
|-----------------------|----------------------|
| Calcium | 73 mg |
| Phosphorus | 21 mg |
| Iodine | 0.009 mg* |
| Iron | 10.9 mg |
| Vitamin A | 9420 I.U. per 100 gm |
| Vitamin B | |
| Thiamine | 0.11 mg |
| Riboflavin | 0.20 mg |
| Niacin | 0.6 mg |
| Vitamin C | 28 mg |
| Folic acid | 127 mcg* |
| Potassium | 470 mg |



Spinach contains following essential Amino acids (gm per 100 g proteins).

| Amino acid (g per 100 g) | |
|--------------------------|-----|
| Arginine | 6.4 |
| Histidine | 2.8 |
| Isoleucine | 5.4 |
| Leucine | 8.0 |
| Lysine | 7.6 |
| Methionine | 2.0 |
| Phenylalanine | 5.4 |
| Theronine | 3.4 |
| Tryptophen | 1.3 |
| Valine | 5.0 |

(Kline & Aman, 1969; Kadans, 1975; Bakhru, 2001)

PHYSICAL AND CHEMICAL PROPERTIES OF SPINACH

It is particularly noted for its high vitamin A content. It contains more a vitamin than most other green vegetables. It is superior to yellow vegetables as the carotene of green leafy vegetables is better absorbed than that of yellow vegetables. It may be noted that the carotene absorption of spinach is from 45 to 58 percent. It is relatively rich in iron and also contains copper. So it is employed as a food medicine in anemia with satisfactory results (Mukherjee, 1983). The chemical constituents of spinach are essential amino acids, iron, vitamin A and folic acid. It is one of the cheapest vegetables which supply the same amount of protein as one gets from the same quantity of meat, fish, eggs and chicken. Other vegetables such as tomatoes, onions and cucumbers may be added to raw tender spinach. It will make an excellent dish with the addition of a little lemon juice and olive oil. The vitamin C content in lemon juice helps the body to absorb the entire amount

of iron from the spinach consumed (Bakhru, 2001).

Chlorophyll

Chlorophyll rich plants are a safe and effective alternative treatment for ailments such as high blood pressure, obesity, diabetes, gastritis, ulcers, pancreas and liver problems, osteomyelitis, asthma, eczema, hemorrhoids, skin problems, fatigue, anemia, halitosis, body odor, and constipation (Wigmore, 1984). In partially digested greens the breakdown product of the chlorophyll bore even closer resemblance to one of fragments or red blood pigment, called hematin. In red blood pigment is a web of carbon, hydrogen, oxygen and nitrogen atoms grouped around a single atom of iron. Nature's green pigment is a similar web of same atoms-except that its centerpiece is a single atom of magnesium. (Kirschner, 1980).

Effect of spinach on constipation

Spinach juice cleans the digestive tract by removing the accumulated waste therefrom. It nourishes the intestines and tones up their movements. It is, therefore, an excellent food remedy for constipation (Bakhru, 2001). Spinach is excellent for the intestinal tract. Raw spinach juice, about one pint a day, will correct the most stubborn case of constipation (Lee, 1982). According to "Dr. N. W. Walker," In raw spinach, Nature has furnished man with the finest organic material for cleansing, reconstruction and regeneration of the intestinal tract. (Kirschner, 1991). Spinach rich in fibre which add bulk in stool to relieve from constipation. Fiber can be fermented by the colonic microflora to gases such as hydrogen and carbon dioxide or it can pass through the large intestine and bind water, increasing stool weight. (Slavin &

Lloyd 2012). Raw spinach juice -100ml. mixed with an equal quantity of water and taken twice daily, will cure the most aggravated cases of constipation within a few days (Bakhru, 1995).

Effect of spinach on digestive system

Aids moderation in eating

Spinach contains fiber which helps in digestion in many ways. Fibre rich foods generally compel chewing and as a result, take more time to eat. This in turn, will lead to satiation and satisfaction with less food and help in the observance of abstemiousness in eating. (Ramchandran 1990).

Facilitates digestion

Dr. Lakshmana sarma explained that “How the fibre may help in the digestive process”. When an article of food is deprived of its fibre content, the particle of food tend to stick together and form a sticky mass, very much like the book binder’s gum. The digestive juices may take more time to penetrate this mass. When the fibre content is high, the fibre keeps the particles of food separate and prevents them from forming a mass and as result, there is a more intimate contact between the food particles separate and prevents them from forming a mass and as result there is a more intimate contact between food and digestive juices. (Ramchandran 1990).

Effect on intestine

Decreases food transit time, increases bulk, smoothens and quickens the passage of stool. The fibre present in food stimulates peristaltic activity, quickens the pace of movement of food through the alimentary canal, facilitates digestive process, reduce the time taken for digestion and increases the bulk of the stools and make elimination quick, easy and complete. (Ramchandran 1990).

HEALTH BENEFITS OF SPINACH ON DISEASES / DISORDERS

Anaemia

Spinach vegetable is a valuable source of high grade iron. After its absorption in the system, the formation of haemoglobin and red blood cells take place. It is thus highly beneficial building up the blood and in the prevention and treatment of anaemia (Bakhru, 2001). Green vegetable juice made freshly in the juicer or blender from any available greens, such as spinach etc. It can be mixed with carrot and red beet juice. Drink at least 2 glasses each day. (Airola P.1990)

Night Blindness

The spinach is particularly rich in vitamin A. It contains more vitamin A than most other green vegetables. This vitamin promotes growth and health, specially the health of (rods and cons) the eyes. Lack of this vitamin may lead to night blindness. Spinach is thus an effective food remedy for the prevention and treatment of night blindness (Bakhru, 2001).

Acidosis

Spinach is also a rich source of calcium and other alkaline elements which are essential for keeping the tissues clean and for preserving the alkalinity of the blood. It, therefore, helps prevent chronic diseases which thrive on the formation of too much acid in the system (Bakhru, 2001). Leafy vegetables act as buffer and maintain the proper alkalinity of the blood by balancing the acidity of acid-producing foods (Begum, 1999). Reduces gastric acidity by addition of fibre containing green leafy vegetables (Ramachandran, 1990).

Liver Tonic

Spinach is given as a liver tonic in jaundice, general edema of the body. (Kline & Aman,1969). It’s cleansing and building properties stimulate and tone the liver, gall bladder, blood and lymph circulation, and

large intestine. Spinach juice has a mild laxative effect when an ounce of it is consumed along with other fresh vegetable, green or sprouts juices (Blauer, 1989).

Respiratory Disorders

This popular green leafy vegetable possesses mucus clearing property and helps control respiratory diseases. Infusion of fresh leaves of spinach prepared with two teaspoonfuls of fenugreek seeds mixed with honey is an effective expectorant tonic during the treatment of bronchitis, tuberculosis, asthma and dry cough due to congestion in the throat. It soothes the bronchioles, liquefies the tenacious sputum and forms healthy tissues in the lungs and increase resistance against respiratory infections. It should be taken in doses of 30ml. three times daily. (Bakhru, 2001).

Heart Health

Vegetables are good sources of fiber, which lowers the body cholesterol level, consequently decrease the risk of cardiovascular diseases. (Hanif et. al., 2006). Cholesterol is the main culprit in the causation of heart disease. Unwanted cholesterol passes out into intestine along with the bile and should normally be thrown out along with the stools. But some of it may get dissolved in the bile acids and get into blood. Dietary fibre absorbs and binds the cholesterol, whatever be its source and prevents it from dissolving in the bile acids. The liver is thus forced to use its cholesterol to produce more bile acids. (Ramachandran, 1988).

Cancer

Spinach tops the list of green leafy vegetables which helps prevent cancer. It is an extremely rich source of antioxidants and anticancer compounds. It contains about four times more beta carotene and three times more lutein than broccoli. (Bakhru 2014).

Diabetes

Green vegetables are plethora of magic bullets. Fruit and vegetables can prevent chronic diseases because of their antioxidant content. Green leafy vegetables such as spinach may also act to reduce type 2 diabetes risk due to their high magnesium content. (BMJ 2010).

Tooth Disorders

The Spinach juice is effective in strengthening the gums and preventing and curing dental cavities. Chewing raw spinach leaves cures pyorrhea. A mixture of carrot juice and spinach juice, taken early in the morning, can cure bleeding and ulcerated gums. (Bakhru, 2001). Spinach and tomato contains enough amount of vitamin C to prevent and cure scurvy. (Hanif et.al., 2006). Spinach juice is especially strengthening to the teeth and gums because of its high concentration of alkaline minerals. However, because it is rich in oxalic acid (an acid that require exercise to be metabolised), spinach juice is best used in moderate amounts, in combination with other juices, once or twice weekly (Blauer 1989).

Pregnancy and Lactation

As the richest source of folic acid, spinach is a very valuable food during pregnancy and lactation. Megaloblastic anaemia of pregnancy occurs because the mother is deficient in folic acid. This deficiency of folic acid occurs as this substance is required for the developing foetus. Regular use of spinach during pregnancy will help prevent the deficiency of folic acid. Spinach is also good source of nutrition for nursing or lactating mothers and improves the quality of their milk (Bakhru, 2001).

Urinary Disorders : The leaves of spinach are an effective Diuretic food. They increase the secretion and discharge of urine. Fresh spinach juice taken with tender coconut

water once or twice a day acts as a very effective but safe diuretic due to the combined action of both nitrates and potassium. It can be safely given in cystitis, nephritis and scanty urination due to dehydration (Bakhru, 2001).

Bones : Calcium has found high in spinach (76 mg/100gm) (hanif 2006). Spinach rich in calcium, magnesium, potassium, phosphorus which are essential bone builders. Consumption of green juice make bones dense strong due to rich in calcium.

Age-Related Macular Degeneration (AMD)

Dietary intakes of the carotenoids lutein and zeaxanthin, which are primarily obtained from dark-green, leafy vegetables, have been found to be most strongly associated with reduced risk for age-related macular degeneration (Seddon et al. 1994). Dietary intervention with spinach consumption in humans has revealed beneficial effects on the ophthalmic system. Ingestion of spinach and collard greens was associated with a lower risk of age-related ocular macular degeneration and cataracts (Lomnitski et. al.2003).

CONCLUSION

Spinach also called as "**Life Protective Food**". Spinach has therapeutic action on each and every system. Spinach protects our life from **cradle to grave** as development of fetus in womb to degeneration in old age. Spinach gives it's love and affection at every stage of life like a **mother**. Though we can't count their precious and uncountable benefits on finger tips but some unforgettable benefits in today's wrong lifestyle disorders are Diabetes, Hypertension, Heart diseases, Obesity, Blindness, Osteoporosis, Anemia, Constipation and many more. Spinach

vitalises every organ of human body that's Brain, Eyes, Mouth, Throat, Lungs ,Heart, Stomach, Liver, Intestine, Skin, Hairs, Bones, Teeth etc. Spinach can be called as **QUEEN OF GREENS** which gives us gift of natural health.

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