

# RADISH

## A UNDERUTILISED VEGETABLE FOR FOOD SECURITY

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### INTRODUCTION:

Radish (*Raphanus sativus*) is a root vegetable which is an annual or biennial brassicaceous crop grown and consumed worldwide. It is a root vegetable with light-colored, crunchy flesh, variable skin color and an almost spicy to peppery taste. The hotness varies from mild to very strong. They vary in shape from short and round to long and narrow with the skin color of red, black, white, yellow, pink or purple. It is likely to be native of the southeast or central Asia. The two main categories of radish include winter and spring radishes which usually depend on the time of harvest. Spring radish have short growing season with smaller size and are generally eaten raw. The winter radish has longer growing season with larger round or elongated shaped ones that are eaten cooked. The winter radish can be stored for longer duration compared to spring ones.

### HISTORY OF RADISH:

The ancient Greeks and Romans around 2500 years ago used it for food and medicinal purposes. In Unani, Greek-Arab and Indian folk medicine, it is used as a household remedy for treating ailments like jaundice, gallstones, liver diseases, rectal prolapse, indigestion and other gastric pains. It contains carbohydrates, sugars, dietary fiber, protein, water-soluble vitamins like B1, B2, B3, B5, B6, B9 and C) and minerals like calcium, iron, magnesium, manganese, zinc, potassium, and phosphorus.

### CULTIVATION OF RADISH:

Radish seed germinates in three to four days in moist conditions and soil temperatures of 18 to 29°C. Best quality roots are obtained under moderate day lengths with air temperatures in the range 10 to 18°C. The crop can mature in 3–4 weeks under optimal conditions but in colder weather, they may require 6–7 weeks. The radish is a diploid species with 18 chromosomes.

Radishes can be a companion plants for many other crops as they emit pungent odour that can deter insects and pests like aphids, cucumber beetles, tomato hornworms, squash bugs, and ants to a certain extent. They can be used as a trap crop luring insect pests away from the main crop to reduce their losses. Cucumbers and radishes can thrive well when grown in close association with each other along with chervil, lettuce, peas and nasturtiums.

### NUTRITIONAL VALUE OF RADISH:

Every 100 g radish gives energy of 16 Kcal, carbohydrates 3.4 g, protein 0.7 g, fat 0.1g, sugars 1.9 g and dietary fiber of 1.6 g. They are low in calories due to a water content of 95.0% alongwith valuable vitamins and minerals. The consumption of 100g of radish can meet RDI of 25.0% for vitamin C, 6.0% of folate, 2.5% of calcium, 4.0% of iron, 5.0% of copper, 7.0% of potassium, 5.0% of vitamin B6 and 2.0% of magnesium.

### HEALTH BENEFITS OF RADISHES:

These are beneficial in treating common day-to-day ailments like fever, cold, cough, and allergies. The flower, fruit, leaves, and seeds are used widely for their potent medicinal purposes. It contains unique bioactive compounds with recognized potential health benefits like catechin, pyrogallol, vanillic acid, and other phenolic compounds. Although radish is not a much-preferred vegetable can protect the heart to reduce indigestion, cleanse the liver and





stomach by detoxification to make skin healthy due to its antioxidants. The vitamin C present in these root vegetables acts as an antioxidant to protect your cells from damage.

### Reduce the risk of diabetes:

They contain chemical compounds like glucosinolates and isothiocyanates that can help regulate blood sugar levels. The coenzyme Q10, an antioxidant present in it, can help reduce the risk of diabetes.

### Enhance liver and kidney function:

The indole-3-carbinol and 4-methylthio-3butenyl-isothiocyanate present can help the liver detoxification and heal against damage. These same compounds also help the kidneys flush out toxins. It is a diuretic due to its potassium and magnesium content, which can increase urine production, may help reduce inflammation and relieve the burning sensation during urination.

### Helps regulate blood pressure:

Radish also provides your body with potassium that may lower blood pressure and keep blood flow in control.

### Guards heart:

The anthocyanins present in it keep the heart functioning correctly, reducing the risk of cardiovascular diseases. The natural nitrates can improve blood flow in the body.

### Aids digestion and prevent piles:

Radish is rich in dietary fiber can lower gastric emptying time and improve bowel movement. The indigestible carbohydrates, especially lignins, help decrease water retention, thereby preventing constipation, which otherwise can cause hemorrhoids, commonly called piles. This root is good for the digestive system as it can reduce acidity, obesity, and nausea due to its mineral and water content.

### Boost immunity:

The high vitamin C can protect from the common cold and cough and improve the basic immunity system. It also controls the development of harmful free radicals, inflammation, and early aging due to its antioxidant property.

### Good for rheumatoid arthritis:

Radish scavenges free radicals from the body, thereby preventing cartilage damage due to its vitamin C content. This also aids in the formation of collagen, which helps in the formation of cartilage. Collagen boosts the blood vessels and decreases the chance of developing atherosclerosis.

### Good for skin:

Radish is rich in phosphorus and zinc which help in reducing dryness, acne, and rashes. Its high-water content keeps the body naturally hydrated.

### Prevent respiratory disorders:

It has anti-congestive vitamins that prevent irritation of the nose, throat, windpipe, and lungs from colds, infections, and allergies.

### Consumption of radish:

From its root to its fruits and leaves, the entire plant is edible and can be used to create a range of delicacies. The most commonly eaten portion is the napiform taproot and tops used as a leaf vegetable. The root of radish can be consumed as raw mostly in salads. Radish is also consumed in chutneys, curries, dals, kadis, sambar, fry, soups, pickling/fermented to being added to stuffed parathas and rotis.

### OTHER USES:

The radish seeds can be pressed to extract radish seed oil as wild radish seeds contain around 48.0% oil. Although this oil is not suitable for human consumption, it has potential to be used as biofuel. This root crop has other uses like being used as a cover crop during cooler times to increase soil fertility, scavenge lost soil nutrients, suppress spread of weeds, help alleviate soil compactness and prevent soil erosion during winter.

### CONCLUSION:

Though it is not a staple vegetable in the diet, radishes with their plethora of nutrients and antioxidants have umpteen health benefits to combat many life style diseases like diabetes, hypertension augments heart and liver health. Reap the wellness incentive of this humble vegetable by adding it to your regular diet which can help provide food security also.

