American Journal Of Agriculture And Horticulture Innovations

VOLUME Vol.05 Issue08 2025
PAGE NO. 15-18
DOI 10.37547/ajahi/Volume05Issue08-02

Benefits and Harm of Turnip for The Organism, Properties, Choice Rules

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Received: 15 June 2025; **Accepted:** 11 July 2025; **Published:** 13 August 2025

Abstract: Turnip (Brassica rapa subsp. rapa), a root vegetable widely cultivated in temperate regions, has been valued both as a dietary component and as a traditional remedy for centuries. This article examines the nutritional composition, potential health benefits, possible adverse effects, and selection guidelines for turnips. Rich in dietary fiber, vitamins (particularly C, B-complex, and folate), minerals (such as potassium, calcium, and magnesium), and bioactive compounds, turnips contribute to the maintenance of metabolic balance, immune function, and cardiovascular health. Of particular interest is the glucosinolate–myrosinase system: during thermal processing, glucose-containing glucosides in turnips are enzymatically or chemically converted into mustard oil (allyl isothiocyanate). Mustard oil exhibits mild antimicrobial properties, stimulates gastric secretion, enhances appetite, and has a calming effect on the central nervous system. However, excessive consumption may provoke gastrointestinal discomfort in sensitive individuals, and high intake of glucosinolates could interfere with thyroid function, especially in populations with iodine deficiency. Furthermore, certain individuals may exhibit allergic reactions to turnip components. Selection of fresh turnips is critical to maximize nutritional value; optimal specimens are small- to medium-sized, firm, smooth-skinned, and free from cracks or discolorations, with fresh green tops if present. By synthesizing current literature and experimental findings, this study underscores the importance of moderate consumption, proper preparation methods, and careful selection to fully realize the health-promoting potential of turnips while minimizing risks. The results contribute to a broader understanding of functional foods within preventive nutrition and diet therapy.

Keywords: Turnip, vitamin, carbohydrate, medicine, healing.

Introduction: Turnip (Brassica rapa subsp. rapa) is one of the oldest cultivated root vegetables, with archaeological and historical evidence indicating its use as a food source since antiquity. In ancient Egypt, Greece, and Rome, turnips were valued for their nutritional qualities, though their role in the diet often reflected social hierarchies. Historical accounts suggest that they were a staple provision for slaves and lower-class populations, largely due to their ease of cultivation, storage stability, and capacity to yield in diverse soil and climatic conditions [1].

During the early Middle Ages in Europe, the perception of turnips gradually evolved. Cooked turnip dishes began to appear in the diets of broader segments of society, gaining recognition as a respectable and nourishing meal. Nevertheless, the introduction and rapid spread of the potato (Solanum tuberosum) from South America to Europe and subsequently to Asia in the 16th–17th centuries marked a turning point in agricultural and culinary practices. Over time, the potato displaced the turnip from its central role in many regional diets, especially in rural areas [2].

By the 20th century, turnips retained significance primarily as a staple for economically disadvantaged populations, valued for their affordability and long shelf life. In recent decades, however, the resurgence of interest in traditional foods, combined with the

growing influence of nutrition science and public healt campaigns, has revitalized the status of the turni Nutritionists, dietitians, and food scientists hav actively promoted its diverse health benefits, including its rich micronutrient profile, dietary fiber content, and bioactive compounds with potential disease-preventive properties. As a result, turnips are once again gaining a place in the diets of diverse demographic groups, from health-conscious consumers to culinary professionals seeking t incorporate heritage vegetables into modern cuisin [3].

Medicinal Uses of Turnips

Turnip (Brassica rapa subsp. rapa) has long been value not only as a dietary component but also as a medicina plant in various traditional healing systems. It therapeutic potential is largely attributed to its lo caloric value (approximately 32 kcal per 100 g), hig nutrient density, and bioactive compounds that exert physiological benefits. Steamed turnips, in particular, are recommended by healthcare practitioners as part of dietary regimens for individuals requiring gentle, easily digestible foods. The root vegetable supports gastrointestinal health by improving digestion and stimulating intestinal peristalsis, making it beneficial in the management of constipation. Pureed turnips are frequently incorporated into children's diets as a nutritious, hypoallergenic, and easily assimilable food.

In the field of cosmetology, turnip derivatives are employed as moisturizing and nourishing agents. Fresh turnip juice, when applied topically, can reduce skin inflammation and promote the healing of purulent wounds due to its antibacterial properties. Laboratory and epidemiological studies have indicated that glucoraphanin—one of the glucosinolates present in turnips—may play a role in cancer prevention by inhibiting the proliferation and metastasis of malignant cells [4]. Additionally, the high sulfur content contributes to detoxification processes, accelerating the elimination of harmful metabolites and xenobiotics from the bloodstream.

Varietal Characteristics and Dietary Suitability. The selection of turnips for medicinal or dietary purposes depends on varietal and quality factors:

- Yellow turnip: Rich in juice, strong flavor profile, and high dietary fiber content.
- White turnip: Milder aroma, finer fiber structure, easily digestible, and thus suitable for pediatric and geriatric diets.
- Green turnip: Flavor reminiscent of radish, often used in raw salads.
- Black turnip: Not commonly consumed due to its pronounced bitterness, though used in folk medicine for cough and bronchitis.

Selection and Storage Guidelines. For maximum nutritional value, selected specimens should have smooth, unblemished skin and be of smaller size, as these are generally less bitter and more tender. Storage practices influence both taste and nutrient retention:

Cellar storage: When buried in slightly moist soil, turnips can remain fresh from autumn to spring.

Refrigeration: Limited to 1–2 months due to high humidity and insufficient ventilation.

Room temperature: Preserves freshness for several weeks if kept in a dark, dry place.

Long-term preservation: Peeled, chopped turnips can be frozen for several months; however, prolonged storage often increases bitterness.

Traditional Medicinal Applications. In ethnomedicine, turnips have been referred to as the "sultan of vegetables" due to their broad therapeutic spectrum, which includes analgesic, wound-healing, antitussive, diuretic, and antiseptic properties. Specific applications include:

- Respiratory conditions: Boiled turnips are believed to alleviate shortness of breath; a preparation of boiled turnips with butter and honey is used to soothe the chest and reduce cough severity.
- Oropharyngeal inflammation: Gargling with decoctions of boiled turnips is a traditional remedy for sore throats.
- Topical pain relief: Crushed or grated turnips, applied externally, are used to relieve localized pain and swelling.

The broad pharmacological potential of turnips, encompassing both systemic and topical applications, underscores their role as a functional food and a plant of interest in preventive and integrative medicine.

How to make a decoction of turnips at home

Pour two tablespoons of finely chopped turnips with a glass of water, boil for 15 minutes, and drink a quarter cup when you have a cold. Turnips and their juice have been used to treat coughs, hoarseness, and asthma. When consumed, turnips calm the nerves and normalize heart function.

Turnip decoction is drunk when the fever is high and the heart is disturbed. To do this, pour a glass of boiling water over 2 tablespoons of grated turnip and boil for 15 minutes. After cooling, drink a quarter of a glass to reduce fever.

In diseases of the lungs and respiratory tract, a mixture

of turnip juice with honey is considered a cough suppressant. For this, you need to drink turnip juice 3-4 times a day, one tablespoon.

To prepare a soothing ointment, pour a glass of boiling water over a tablespoon of grated turnip and boil for 1 minute. If you drink a glass of this decoction before going to bed, it will have a calming effect.

It is also used in folk medicine to treat insomnia. Pour a glass of boiling water over two tablespoons of chopped turnip, boil for 15 minutes and drink a quarter cup.

Turnip leaves are very rich in calcium. When the juice made from its leaves is added to carrot and beet juices, a wonderful ointment is formed that strengthens teeth and bone tissue. If turnip leaf juice is consumed by adding it to celery and carrot juices, it is a remedy for reducing stomach acidity.

The healing properties of turnips

Turnips have long been used by people as a remedy for a number of diseases. In folk medicine, turnips have been used to treat diseases related to the respiratory tract, fever, and heart palpitations. Its boiled form, as well as its juice decoction, are recommended as a remedy for shortness of breath and whooping cough. Turnips, either dry or cooked in a pot with honey and yolk, soften the chest. At home, you can prepare a medicine from turnips as follows: two tablespoons of grated turnips are poured into a glass (200 grams) of boiling water and boiled for 15 minutes. As a remedy for the above diseases, a quarter of a glass should be drunk or a glass of decoction should be consumed before bedtime. Crushing boiled turnips and applying them to areas affected by gout is a remedy for pain. Gargling with boiled water can help relieve sore throats and toothaches. According to scientific research, the glucose in turnips turns into mustard oil during cooking. Mustard oil, in turn, stimulates appetite and calms the nerves.

Turnips clean and remove all mucus from the nasal cavity. It is consumed raw, twice a day, after grating half a pack (200 g). You should not eat or drink anything else for at least an hour. During this treatment, you should drink two cups of yogurt twice a day. Fried, fatty foods, kebabs and milk should not be consumed temporarily. You should drip 2-3 drops of turnip juice into the nose at least twice.

Turnips boiled with meat are a powerful food and remain in the stomach for a long time. Turnip decoction is a very good remedy for high fever and heartburn. For this, pour 2 tablespoons of grated turnips with a glass of boiling water and boil for 15 minutes. After cooling, drink a quarter of a glass to reduce fever.

Turnips are good for treating lung and respiratory diseases. A mixture of turnip juice with sugar or honey is a cough suppressant. To do this, you need to drink a tablespoon of turnip juice 3-4 times a day. To prepare a soothing medicine from turnips, pour a tablespoon of grated turnips with a glass of boiling water and boil for 1 minute. If you drink a glass of such a decoction before going to bed, it will act as a sedative.

CONCLUSIONS

Turnip (Brassica rapa subsp. rapa) represents a historically significant and nutritionally valuable root vegetable with a wide spectrum of dietary and medicinal applications. Its low caloric density, high content of vitamins (C, B-complex, carotenoids), minerals (calcium, potassium, magnesium), dietary fiber, and bioactive compounds such as glucosinolates make it an important component of preventive nutrition and functional food strategies.

Traditional medicine has long utilized turnips for the management of respiratory ailments, febrile conditions, cardiovascular irregularities, digestive disturbances, and inflammatory processes. Decoctions, juices, and topical preparations derived from turnips have demonstrated diverse physiological effects, including mucolytic, sedative, antimicrobial, and anti-inflammatory actions. Scientific evidence supports several of these uses, particularly the role of glucoraphanin-derived mustard oil in appetite stimulation, antimicrobial defense, and nervous system modulation.

Appropriate selection and storage methods are critical for preserving both the sensory and therapeutic qualities of the vegetable. Smaller, fresh, blemish-free specimens are preferable for both culinary and medicinal purposes, and storage conditions should minimize bitterness and nutrient loss.

Overall, turnips combine culinary versatility with significant health-promoting potential. Further interdisciplinary research—encompassing phytochemistry, nutrition science, and clinical studies—could validate traditional uses, optimize preparation methods, and expand their application in modern dietotherapy and public health nutrition.

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