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Horseradish

From fighting cancer to taming tonsillitis, horseradish is a potent perennial plant that can be used to combat a number of disorders.

Scientifically reviewed by: [Dr. Gary Gonzalez, MD](#), on January 2021.

Whether it's fighting the flu and respiratory disorders or combating tonsillitis and urinary tract infections, horseradish is a condiment that can help keep you healthy.¹⁻³ Used to treat a wide variety of ailments over centuries, nearly every part of the horseradish plant seems to have some medicinal value. Tea made from its root has been used as an expectorant,¹ while tea brewed from its flowers can be used to fight the common cold.³ A poultice can also be made of its roots to externally treat joint discomfort.

In addition, raw leaves of horseradish also fulfill a purpose as a natural analgesic and, pressed against the forehead, can eliminate headache pain. Furthermore, an infusion of horseradish has known antibiotic properties,^{4,6} which have been proven effective against pathogenic fungi.^{4,5}

A perennial plant, horseradish is related to mustard, cabbage, and other cruciferous vegetables. Despite its long history as a versatile herbal remedy, however, perhaps the most interesting health benefit of horseradish is emerging from recent studies of its anticancer effects.



WHAT YOU NEED TO KNOW

Almost every part of the horseradish plant has medicinal value.



Horseradish contains compounds called glucosinolates, which promote healthy cell growth and increase the liver's ability to detoxify carcinogens. Glucosinolates are commonly found in many cruciferous vegetables, but horseradish has up to 10 times more than broccoli!

Glucosinolates and Cancer

Horseradish contains significant amounts of cancer-fighting compounds called *glucosinolates*, which increase the liver's ability to detoxify carcinogens and may suppress the growth of tumors. Although broccoli, Brussels sprouts, and other cruciferous vegetables also contain these compounds, horseradish has up to 10 times more glucosinolates than broccoli.^{1,2,7,8}

Glucosinolates are responsible for the characteristic hot taste of horseradish, wasabi, and mustard,⁹ and two of the most abundant compounds in the horseradish root are sinigrin and *gluconasturtiin*. Once inside the body, *glucosinolates* are broken down into powerful derivatives called *isothiocyanates* and *indoles*, which are believed to be the main cancer-preventive contributors of horseradish and cruciferous vegetables.

A recent study from the University of Illinois indicates that the substantial quantities of *glucosinolates* in horseradish can increase human resistance to cancer. Mosbah Kushad, one of the study's coauthors says, "glucosinolates increase the liver's ability to detoxify carcinogens and they may actually suppress the growth of existing cancerous tumors. Our analysis of various horseradish varieties shows they are a rich source of these compounds."⁷ Kushad's study also reveals that horseradish is one of the few medicinal vegetables whereby processing actually improves its anticancer benefits, making it easier for us to benefit from its therapeutic powers. He says, "horseradish contains an enzyme that breaks down glucosinolates into the compounds that produce the anticancer benefits. So processing horseradish actually helps. It releases this enzyme and, when it comes into contact with the glucosinolates, they break down into the compounds that are nutritionally beneficial."



Another recently published study from the University of Dundee in Scotland suggests a possible anticancer mechanism of action for the glucosinolates found in horseradish and related plants of the Brassica family. The researchers have found that *isothiocyanates* and *indoles* are able to induce cancer-protective genes by activating specialized transcription factors as well as inactivating the proinflammatory mediator nuclear factor-kappa B. *Isothiocyanates* and *indoles* are also capable of affecting cell-cycle arrest and stimulating apoptosis.¹⁰

On a biochemical level, it seems to be that the defensive properties the Brassica vegetables themselves derive from glucosinolates translate to a protective effect in humans in fighting cancer. A reduced incidence of different types of cancer has been linked to consumption of Brassica vegetables, and there is evidence that glucosinolates and their hydrolysis products also play a role in reducing cancer risk.¹¹

According to Cornell University's Department of Animal Science, vegetables containing glucosinolates and their derivatives appear to help protect against rectal and colon cancer, while also enhancing the activity of several liver enzymes used in detoxification processes.⁹

Sinusitis, Urinary Tract Infections and Other Health Benefits

Juice or sauce extracted from horseradish root has been used effectively to relieve sinus discomfort.¹² The traditional treatment for sinusitis is to "take a half teaspoonful of grated horseradish sauce without dilution both morning and afternoon. Do not drink anything or eat for at least ten minutes after the dose. There will be a powerful feeling in the head, followed by a sensation of the sinuses clearing, sometimes accompanied with sweating and perhaps tearing."⁴

Due to its antibiotic properties, horseradish can also be used to treat urinary tract infections (UTI) and destroy bacteria in the throat that can cause bronchitis, coughs and related problems. The German Commission E (the German equivalent of the FDA) has approved horseradish as an adjunct treatment to prescription drugs for UTIs. It is believed that chemicals in horseradish concentrate in the urine, and therefore deliver antibiotic effects to the bladder. They may also activate specific enzymes that help to keep toxins from accumulating in the bladder. Additionally, horseradish stimulates the body to eliminate urine, so bacteria or other inflammatory agents in the bladder may be flushed out sooner than they normally would be eliminated.¹³

One of the most powerful glycosides found in horseradish, sinigrin has been found to relieve the symptoms of water retention, due to its stimulating effect on the blood capillaries.⁴

A mixture of horseradish vinegar has been used effectively to treat seborrhea (dandruff).¹²

Horseradish is *rubefacient*, an agent that stimulates blood flow below and to the surface of the skin. As such, this action makes the herb effective in poultices and as a very effective liniment or massaging agent to relieve muscular aches and pains, painful arthritic and rheumatic joints, and chronic rheumatism. As an external rub, horseradish has been used to relieve chest congestion. The German Commission E also recommends external use of horseradish for respiratory tract congestion as well as minor muscle aches.¹⁴



In addition to their potential uses as an anti-cancer drug, the glucosinolate compounds derived from horseradish may have another very interesting health benefit. In botanical physiology, the glucosinolates protect the plant from toxic or harsh environments.

Recent studies have indicated that they may have the same potential to protect humans from the effects of exposure to toxic chemicals in our environment. A Russian study set out to test the anti-mutagenic properties of a plant extract derived from horseradish. The studied plant extracts and their mixture demonstrate the ability to decrease the genotoxicity of environmental mutagens.¹⁵

"Horseradish is one of the few medicinal vegetables whereby processing actually improves its anticancer benefits."

Summary

The glucosinolates in the horseradish, *Armoracia rusticana*, have the potential to increase human resistance to cancer and environmental toxins. They have powerful antioxidant properties and can also be used to relieve sinus and respiratory distress.

Glucosinolates also act as natural antibiotics against different types of infections because of

their known toxicity to specific bacteria and fungi, as well as their ability to increase blood flow to the infected area and more rapidly remove the waste products from that region of the body.

Mosbah Kushad, author of the University of Illinois anticancer study has also been involved in studies of broccoli, Brussels sprouts, and other cruciferous vegetables known to contain glucosinolates. His work shows that horseradish has significantly higher levels.



“Horseradish contains more than 10-fold higher glucosinolates than broccoli, so you do not need much horseradish to benefit.” In fact, a little dab on your steak will go a long way to providing important health benefits.

If you have any questions on the scientific content of this article, please call a Life Extension® Wellness Specialist at 1-866-864-3027.

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