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Parsnips

Introduction

The parsnip *Pastinaca sativa* is a plant known for its white fleshy root. It belongs to a genus of 14 different species that are grown primarily for food.¹ It is a close relative of the carrot and looks similar in both the root and shoot. The parsnip easily adapts to a variety of growing conditions.

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Apiales
Family	Apiaceae
Genus	<i>Pastinaca</i>
Species	<i>P. sativa</i>
	Source: usda.org

Botanical Description

Parsnips are tall flowering plants above ground, and grow white fleshy roots underground that are harvested for eating. The stem is sturdy and thick with grooves running up and down and normally stands 2-5 feet in height.² Leaves are branching and have comb-like edges. The leaves give way to groups of yellow flowers. Each flower is small and has 5 petals. The flowers are found in an umbrella-like shape that spans 2-6 inches.³

The wild parsnip has existed in Europe for many centuries and it is thought that more than one strain may have been present in different regions. Throughout its long history, however, the plant has undergone hybridization.⁴

Parsnips also offer an interesting biological example of co-evolution with the parsnip webworm (*Depressaria pastinacella*). The webworm uses parsnips exclusively as their host plant and are one of the only organisms that can get by the parsnip's toxic line of defense.⁵

Nutrition

Parsnips, like the closely related carrot, are a good source of vitamin C. Parsnips, however but do not contain the high amounts of beta-carotene, a form of vitamin A that

¹ Brickell, C., and Cathey, H.M. *A-Z encyclopedia of Garden Plants*. New York: DK Publishing, 2004. P. 756.

² Kennay, J. and Fell, G. "Vegetation Management Guideline, Wild Parsnip (*Pastinaca sativa* L.)." 1990. Online: <http://www.inhs.uiuc.edu/chf/outreach/VMG/parsnip.html> Accessed: 2/12/2008.

³ Kennay and Fell, 1990

⁴ "Parsnips." *The Oxford Encyclopedia of Food and Drink in America*. New York: Oxford University Press, 2004. P. 237.

⁵ "After more than 100 years apart, webworms devastate New Zealand Parsnips." Online: <http://www.biologynews.net/archives/2008/01/31/> Accessed: 2/14/2008.

carrots do.⁶ Recent research has found some surprising information about parsnips. It was long rumored that parsnips would be poisonous if left in the ground too long or harvested at the wrong time. While these ideas may not be entirely true, science today has found that parsnips contain psoralens, a family of chemical compounds that has been connected with cancer formation and other mutations in laboratory animals.⁷

Cultivation

The wild parsnip is easily grown and can survive under most conditions, though it prefers moist, alkaline soils. Its adaptability has proven to be a problem in some areas as the plant is now considered an invasive species and in many its growth needs to be managed.⁸ To plant parsnips, it is advised to find fertile soil that is uniform in texture, as stones or clumps will cause the roots to become crooked.⁹ The seeds should be sowed from ½-1 inch in the soil in rows about 1 foot apart. It is important to weed the rows and thin the crop if necessary.¹⁰

Parsnips should also be watered regularly because if the roots dry up they may crack or split.¹¹ William Thorburn echoes this advice in his 1836 seed catalogue saying, “The parsnip likes a rich, light, deep soil, free from stones, and should be dug or trenched before sowing, at least two spades deep... Sow as early in the spring as possible in drills two feet apart.”¹²

Debate exists as to the best way to harvest parsnips. Traditionally, parsnips have been left in the ground until after the first frost, which is said to improve their flavor. This concept has been expanded in that others believe the flavor improves even more if the crop is left in the ground over the winter, and some prefer to eat them as early spring vegetables.¹³ Controversy exists, however, because historically people have believed the plant turned poisonous if left in the ground for the first frost.¹⁴

The parsnip is a root vegetable and therefore good for storing. They will keep in a root cellar or other controlled environment for long periods of time, during which their starches convert to sugars.¹⁵

⁶“Parsnips.” *The Cambridge World History of Food*. New York: Cambridge University Press, 2000. P. 1829

⁷ Cambridge World History, P. 1829

⁸ Kennay and Fell, 1990

⁹ Everett, Thomas. *The New York Botanical Garden Illustrated Encyclopedia of Horticulture*. New York: Garland Publishing, 1981. Vol. 8, P. 2499.

¹⁰ Everett, 2499.

¹¹ “Parsnips.” Online: http://www.backyardgardener.com/plant_detail.php?id=11164
Accessed: 3/11/08.

¹² Thorburn, William. *William Thorburn’s Catalogue of kitchen garden, herb, flower, tree and grass seeds, bulbous flower roots, greenhouse plants, gardening, agricultural and botanical books, gardening tools, etc. etc.* New York: Geo. P. Scott and Co. 1836. P. 26.

¹³ Oxford Encyclopedia, p. 237

¹⁴ Cambridge World History

¹⁵ Oxford Encyclopedia, p. 237

History

Parsnips originated in Europe and western Asia. They were introduced to the West Indies in the 1500's and made their way to North America in the early seventeenth century. In Europe the parsnip was an important part of the diet, especially among the poor, before it was replaced by the potato almost three centuries later. The parsnip was also important in Europe because it was a staple of Catholic meals when meat was not allowed.¹⁶ In America the parsnip's popularity was spread by the Native Americans, who planted them frequently.¹⁷

Parsnips moved through North America and were found in Virginia in 1609, and in Massachusetts in 1629. Parsnips growing in New York were found in 1779 by General Sullivan as he marched with his troops during the Revolutionary War. The parsnips were located in Iroquois villages.

Hollow Crown was a common variety of parsnip grown pre-1850.¹⁸

Cultural Uses

When immigrants began cultivating parsnips in America they kept their traditional methods of serving the vegetable, which included boiled with butter, or baked and served in sweeter dishes like puddings and as candies.¹⁹ Another way of serving parsnips, as discovered by the citizens of England and Ireland, was to make a parsnip wine by fermenting the roots.²⁰ The Greeks and Romans grew wild parsnips for medicinal purpose.²¹

Horseradish

Introduction

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Capparales
Family	Brassicaceae
Genus	<i>Armoracia</i>
Species	<i>A. rusticana</i>

¹⁶ Oxford Encyclopedia, p. 237

¹⁷ Cambridge World History, p. 1829

¹⁸ Kline, Roger A. The heirloom vegetable garden: gardening in the 19th century. Ithaca, NY: Cornell University Media Services for life science, 1981. P. 17

¹⁹ Oxford Encyclopedia, p. 237

²⁰ Cambridge World History, p. 1829

²¹ Kline, p. 17

Horseradish, *Armoracia rusticana*, is a root vegetable that has evolved into a very popular condiment on today's market. The name aptly describes the vegetable with "horse-" describing its size and coarse exterior and "-radish" coming from the Latin word *radix*, meaning root.²² Other names for the plant include great raifort, mountain radish, and red cole.²³ Horseradish is also a close relative of Japanese wasabi.

Source: usda.org

Botanical Description

Horseradish is a green leafy plant that is a member of the cabbage family. Unlike the cabbage, however, the horseradish is grown and harvested for its root. The root is "thick, white, and cylindrical, with a thin, brown skin, and is safe to eat."²⁴ Horseradish is a coarse plant that can stand up to 3 feet with roots that extend deeply into the ground.²⁵ The plant produces long, dark-green leaves that measure 12-20 inches.²⁶ Small white flowers will be seen on the plant from late spring through the summer.²⁷

The roots are known for their strong flavor, and roots contain the chemical allyl isothiocyanate that can cause one's nose and mouth to burn.²⁸ This chemical is released when the root cells are crushed or otherwise damaged, hence the preparation method of shredding. On a similar note, vinegar is added to preserve the shredded horseradish because it stops the chemical reaction and preserves the flavor.²⁹

The properties of this chemical may be responsible for the many medicinal uses of horseradish and it is still thought that horseradish may be able to kill several different types of bacteria.³⁰ A study by Oklahoma State University found that horseradish may be able to kill *Listeria*, *E. coli*, and *Staphylococcus aureus*, bacteria that can be found in food, specifically meat. People took advantage of this antibiotic property, as horseradish was commonly served with meat throughout its history³¹.

Nutrition

²² "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2/17/2008.

²³ "Herbs and Spices." *The Oxford Encyclopedia of Food and Drink in America*. New York: Oxford University Press, 2004. P. 608.

²⁴ "Horseradish." *The Cambridge World History of Food*. New York: Cambridge University Press, 2000. P. 1787

²⁵ Everett, Thomas. *The New York Botanical Garden Illustrated Encyclopedia of Horticulture*. New York: Garland Publishing, 1981. Vol. 8, P. 249.

²⁶ Brickell and Cathey, 139.

²⁷ Brickell and Cathey, 139.

²⁸ Pleasant, Barbara. "Horseradish." Online: <http://www.motherearthnews.com/print-article.aspx?id=77608> Accessed: 2/17/2008.

²⁹ "Facts About America's Favorite Root" Online: <http://horseradish.org/facts.html>. Accessed 2/17/2008.

³⁰ Pleasant, Barbara. "Horseradish." Online: <http://www.motherearthnews.com/print-article.aspx?id=77608> Accessed: 2/17/2008.

³¹ "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2/17/2008.

Horseradish, although it is typically used only in small amounts as a condiment, is a good source of vitamin C.³² Horseradish is a fat free food and recommended to dieters because it can add flavor to food without any extra calories; in fact, one tablespoon of horseradish contains only six calories. Horseradish is also a source of sodium, potassium, calcium, and phosphorous.³³ Horseradish, in addition to being served at meals, is valued for its medicinal and anti-biotic properties.

Cultivation

Fresh horseradish roots are normally available in the late winter or early spring.³⁴ The crop requires winter dormancy to come to full maturity. Horseradish is a hardy plant and can adapt to most environments, but grows better in colder climates due to its need to overwinter. Horseradish will thrive in areas with fertile soil, specifically soil rich in potash that was left by the glaciers during the last ice age. Areas of full sun also promote growth, though horseradish is very adaptable and can grow in areas where conditions are not optimal. It is important to monitor horseradish if one is growing it in a garden, as it can become invasive.³⁵

It is best to plant the roots in the spring, placing them 3 inches in the soil and 12 inches apart from other plants. The plants are best harvested in the late fall and should be dried after being removed from the ground. The roots do not have to be dug each year, but plants that are 1 or 2 years old will offer the best flavor, as the roots get woody as they get older.³⁶ Horseradish is susceptible to several fungi. Powdery mildew, root rot, leaf spots, and downy mildew all afflict the plant.³⁷ These diseases are all prevented by making sure the plants have enough air and ventilation for both the leaves and the roots, and removing any affected plants to prevent the fungus from spreading.³⁸

History

Horseradish is a native plant of western Asia and southeastern Europe, where it still grows wild today. It has since been spread to all other parts of the world where it is cultivated.³⁹ The Egyptians have known of horseradish since 1500 B.C. It became a popular side dish with meat in Germany around the time of the Renaissance, and its popularity spread to other European countries such as Sweden, Norway, and Finland. It reached England in 1640, but was a common dish only among the lower classes and in

³² Cambridge World History, p. 1787

³³ "Horseradish and Health." Online: <http://horseradish.org/health.html>. Accessed 2//17/2008.

³⁴ Oxford Encyclopedia, p. 608

³⁵ "Facts About America's Favorite Root" Online: <http://horseradish.org/facts.html>. Accessed 2//17/2008.

³⁶ "Facts About America's Favorite Root" Online: <http://horseradish.org/facts.html>. Accessed 2//17/2008.

³⁷ "Horseradish." Online: http://www.backyardgardener.com/plant_detail.php?id=350 Accessed: 3/11/08.

³⁸ "Horseradish." Online: http://www.backyardgardener.com/plant_detail.php?id=350 Accessed: 3/11/08.

³⁹ Cambridge World History, p. 1787

more rural areas. By the end of that century, however, it was served to all classes. Horseradish was brought to North America in the colonial days and was turned into a commercial crop by the mid-1800s.⁴⁰ The crop was brought to the northeast U.S. in 1806 and was known to be in Boston in 1840.⁴¹ Immigrants began farming horseradish in the 1850's, and the industry had taken off by the 1890's in areas of Illinois east of the Mississippi river.⁴²

While horseradish was originally served fresh and grated as a side dish to certain kinds of meat, it became a commercial product in the early nineteenth century and is typically found as a bottled product.⁴³ The horseradish root is shredded and mixed with vinegar, and sometimes beet juice is added for color. It is also possible to find horseradish mixed with an egg-based product and sold as a sauce.⁴⁴ When the practice of bottling horseradish first started, the product was put in brown jars to hide the fact that it was being mixed with turnip, which was used as filler. The H.J. Heinz Company started in 1869 by bottling horseradish in clear bottles.⁴⁵ Most commercial horseradish today is grown in the Midwest, in fertile soil near the Mississippi River.⁴⁶ The United States alone farms almost 24 million pounds of horseradish annually.⁴⁷

Culture

Horseradish has been used for a variety of medicinal causes. It is most frequently used as a tonic, diuretic, and diaphoretic.⁴⁸ The ancient Greeks used the herb as both a cure for lower back pain and an aphrodisiac, while early Europeans used the root specifically for rheumatism and headaches. They would rub the root on areas of pain to relieve soreness.⁴⁹

Horseradish also has religious significance, as it is used in the Jewish Passover tradition to represent bitter herbs on the Seder plate.⁵⁰

⁴⁰ "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2//17/2008.

⁴¹ "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2//17/2008.

⁴² "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2//17/2008.

⁴³ Cambridge World History, p. 1787

⁴⁴ Oxford Encyclopedia, p. 608

⁴⁵ Cambridge World History, p. 1787

⁴⁶ "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2//17/2008.

⁴⁷ "Horseradish: a Root with Roots." Online: <http://horseradish.org/history.html>. Accessed 2//17/2008.

⁴⁸ Cambridge World History, p. 1787

⁴⁹ Pleasant, Barbara. "Horseradish." Online: <http://www.motherearthnews.com/print-article.aspx?id=77608> Accessed: 2/17/2008.

⁵⁰ Pleasant, Barbara. "Horseradish." Online: <http://www.motherearthnews.com/print-article.aspx?id=77608> Accessed: 2/17/2008.

The International Horseradish Festival is held every year in May in Collinsville, Illinois. The tradition began in 1988 to celebrate the plant and the area that produces the most horseradish in the world; Collinsville is single-handedly responsible for producing 60 percent of the world's supply. The event includes games and contests such as the best horseradish recipe.⁵¹

Picture Citations

Fig. 1. "Wild Parsnip Leaf"

<http://www.flickr.com/photos/86953562@N00/503911354/>

Fig. 2. "Parsnips" <http://www.flickr.com/photos/pinadd/328054579/>

Fig. 3. "Parsnips" <http://www.flickr.com/photos/pamrosengren/195958331/>

Fig. 4. "Horseradish" <http://www.flickr.com/photos/cv47al/270705862/>

Fig. 5. "Gold's horseradish truck"

<http://www.flickr.com/photos/boojee/163914938/in/photostream/>

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⁵¹ "Facts About America's Favorite Root" Online: <http://horseradish.org/facts.html>. Accessed 2/17/2008.

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