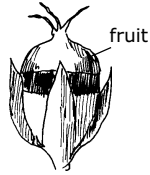
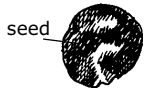


REDROOT PIGWEED Science Page

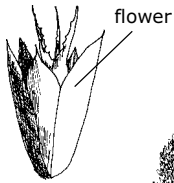
DID YOU KNOW?

One redroot pigweed plant can produce over 100,000 seeds! Some can live up to 40 years in the soil.

Tiny seeds are inside the fruit.



The fruit grows from the flower.



Flowers grow together on a spike.



ORIGINS

Redroot pigweed is native to tropical America. Today it can be found on every continent.



Native Americans of North America have traditionally used redroot pigweed as a vegetable and a grain crop.

THE REDROOT PIGWEED PLANT

Redroot pigweed is an annual. The plant can reach to 2 meters (6 1/2 ft) high in one growing season.

The black, shiny seeds sprout and grow in late spring and early summer when the soil becomes warm.

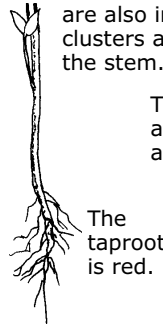
It flowers in late summer and fall.



Small green flowers are tightly packed in tall spikes at the top of the plant.

Some flowers are also in clusters along the stem.

The stems are reddish and hairy.



The taproot is red.

The leaves are diamond-shaped and rough.

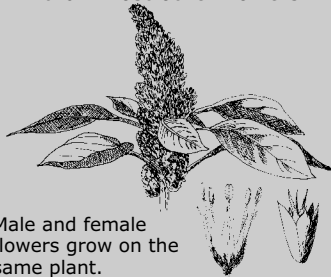


CLASSIFYING REDROOT PIGWEED

FAMILY

Amaranthaceae

In Greek, this means everlasting. Amaranth flowers last much longer than most other flowers.

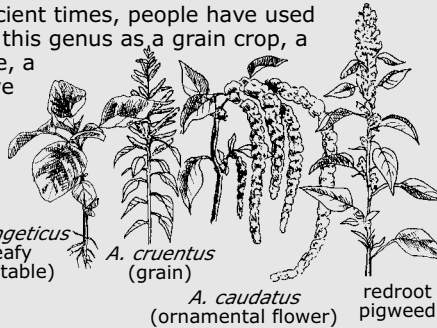


Male and female flowers grow on the same plant.

GENUS

Amaranthus

Since ancient times, people have used plants in this genus as a grain crop, a vegetable, a decorative flower, and for dying cloth.



A. gangeticus
(leafy vegetable)

A. cruentus
(grain)

A. caudatus
(ornamental flower) redroot pigweed

SPECIES

retroflexus

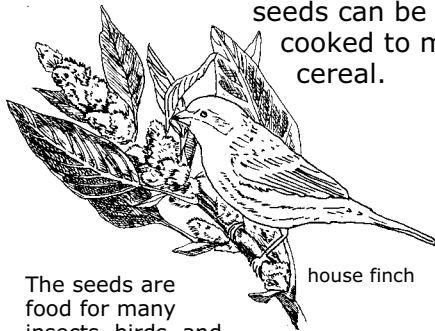
In Latin this means "bent back."

The species was given this name by Swedish naturalist, Carl Linnaeus, in 1753. We still use the name today.



FRIEND...

Small plants that do not yet have flowers are used in salads or are cooked like spinach. The seeds can be roasted and ground to make flour. The whole seeds can be cooked to make cereal.



The seeds are food for many insects, birds, and mammals.

house finch

...OR FOE?

Farmers and gardeners consider redroot pigweed to be one of the worst weeds. Each plant can produce thousands of long-lasting seeds that can sprout and grow in almost any soil.



I'm hoeing out this redroot pigweed before it goes to seed. They say, "One year of seeding means seven years of weeding!"



PUZZLE

Fill in the blanks using one of the numbers at the end of the sentences:

1. A redroot pigweed seed can lie in the soil for over _____ years before sprouting.
(a) 5 (b) 20 (c) 40
2. A pigweed plant can grow _____ meters high.
(a) 1 (b) 2 (c) 3
3. A redroot pigweed plant may produce _____ seeds.
(a) 100 (b) 1,000 (c) 100,000



SPOTLIGHT ON RESEARCH

Using Pigweed to Clean Up Polluted Soil

At many nuclear weapons testing sites, soil is polluted with radioactive wastes. Also, some nuclear power plants accidentally release radioactive wastes, which end up in the soil. Removing all this polluted soil would cost hundreds of billions of dollars.

However, it is very important to clean up these soils, because radioactive wastes are very harmful to human health. The wastes can be taken into the body by eating food grown in polluted soil. They can also be taken in by breathing polluted air or drinking polluted water. Once in the body, these wastes give off radiation that can cause cancer.

Scientists have been searching for cost-effective ways to clean up polluted soils. They have discovered that some plants can take up radioactive wastes through their roots. The wastes collect in the plant shoots without harming the plants. Once fully grown, the plants

can be removed from the area. In this way, the soil can be cleaned up.

Scientists at Cornell University grew three plant species in polluted soil at the Brookhaven National Laboratory in New York State. Nuclear testing took place at this site in the 1950's and 1960's. The scientists tested how well the plants could take up radioactive cesium and strontium from the polluted soil. They discovered that redroot pigweed took up more radioactive cesium and strontium than the other two plant species, partly because it grew the fastest and biggest. They estimate that if they grow two crops of redroot pigweed a year, it will take 7 years to clean up half the radioactive strontium, and 18 years to clean up half the radioactive cesium at this site.

SOURCE: Fuhrmann, M., Lasat, M., Ebbs, S., Cornish, J., & Kochian, L. (2003). Uptake and release of cesium-137 by five plant species as influenced by soil amendments in field experiments. *Journal of Environmental Quality* 32(6), 2272 - 2279.

Ha! Ha!
Ha! Ha!
Ha! Ha!
Ha! Ha!

JOKE



CAUTION: Never pick weeds to eat unless you are very sure you can identify them. Do not harvest weeds that grow near roadsides or that may have been sprayed with chemicals. These plants may not be safe to eat. Only eat young redroot pigweed plants. Do not eat redroot pigweed that has grown on heavily fertilized soil. It may contain toxic amounts of nitrogen, and taste bitter.

Answers to puzzle: 1(c); 2(b); 3(c)



STIR-FRIED PIGWEED WITH COCONUT

This delicious recipe is from Southeast Asia, where pigweed leaves are often eaten as vegetables.

Serves 4-6

Ingredients

- * 4 cups (1 liter) young redroot pigweed leaves
- * 2 tablespoon (30 ml) oil
- * 1 onion, finely chopped
- * 1 teaspoon (5 ml) crushed garlic
- * 1 teaspoon (5 ml) grated fresh ginger
- * 1/2 teaspoon (2.5 ml) ground turmeric
- * 1 teaspoon (5 ml) chili powder
- * 1/4 teaspoon (1.3 ml) salt or to taste
- * 3 tablespoon (45 ml) dried coconut flakes

Instructions

1. Wash the leaves and shake off the water. Roll them in a bundle and chop finely.
2. Heat the oil and fry the onion, garlic, and ginger over low heat, stirring frequently, until onions are soft.
3. Add the ground turmeric and chili powder, then the leaves. Stir-fry for a minute, and then sprinkle with salt and a few tablespoons of water.
4. Mix in coconut.
5. Cover and simmer for 5 minutes.
6. Serve with rice.

Charmaine Solomon's Encyclopedia of Asian Food, Periplus Editions, 1998, supplied courtesy of New Holland Publishers (Australia) Pty Ltd.