Chiggery Grapes

In the late 1600's Charles Plumier (b. 1646 - d. 1704) sat on the Caribbean island of Hispaniola drawing a scrambling vine with plump white fruits.

This French Franciscan monk must have been impressed with the plant because he devoted a new genus to it, and named it after a friend and colleague. That friend was the eminent French botanist, physician, naturalist, and professor of medicine and botany, Joseph Pitton de Tournefort (b. 1656-d. 1708). After returning to Europe, Plumier published his drawings and descriptions of plants he had studied in a book called Nova plantarum americanarum genera. He called the climbers Pittonia birstissima and ramosissima, bacis abis. His was the first European discovery of this tropical American relative of Old World borage (Borago officinalis), a medicinal plant of his homeland.

We now call the American plants Tournefortia birstissima, a name given to them by the Swedish botanist Carolus Linnaeus in 1753. Linnaeus often used names proposed for plants by people who preceded him, but sometimes changed them to suit his own idiosyncratic tastes (see The Palmetto 13(4): 8-11. 1993, for more on the subject).

Since 1753, the plants have been found throughout the Greater Antilles, on scattered islands of the Lesser Antilles, and through the mainland from Mexico to Peru. Tournefortia birstissima also occurs in Florida, where it is one of the species on the Florida Department of Agriculture endangered list. The species is so rare in Florida that few people know it. Those who do recognize the vine sometimes call it “chiggy grapes,” probably having imported a West Indian name. The vine is known from a half-dozen or so scattered sites in Hendry, Collier, Dade and Monroe counties. In the Lesser Antilles it is also rare, being known from Guadeloupe, but not from nearby Dominica.

Even though this plant is apparently rare throughout its range, people living where it grows have an array of names for it. To the Florida Miccosukee it is cokashaki (white grapevine). Their relatives, the Muskogee-speaking Seminoles, call it colora ka, with the same meaning. In Cuba, it is nigua (chigger), cayaya hembra (female stick?), bejucu cayaya hembra (female stick vine) or bejucu cachaza (whisky vine). Spanish and French speaking people in Hispaniola call it nigua peluda (hairy chigger), chique-chique (a chique is a quid of tobacco, or a chigger) or liane chiques (chigger vine). Puerto Ricans know it as nigua (chigger), mata de nigua (chigger bush), bejucu de nigua (chigger vine) or chiggy grapes. Jamaicans say it is chigger nut, cold withe, crocus bush or hog book. People in the French Antilles call it chique en fleur (flower for chiggers) or herbe à mélengres (herb for a weak constitution). In various parts of Mexico it is amapa hasta (?), mach'much' (chew loudly vine), ortiguilla (little nettle), perlas (pearls), tlachichina (perhaps either based on tlachichic = referring to its bitter (chiuhich) taste, or chichino = for putting on 'fire', in reference to the itching), tsak ts'bool (red plant) or telpatli (patli=medicine). Nicaraguans call it tiricica (colloquial for ictericia, or jaundice) or frutilla (little fruit). It weeps the lágrimás de San Pedro (San Pedro's tears) in Colombia, and is nigua (chigger) or nigüito (little chigger) in Venezuela.

As several of the common names indicate, this plant is considered a remedy for chiggers (Eutrombicula alfreddugesi), those little red spider relatives that bite and leave itching spots. In English we also call them red-bugs, red mites, and harvest mites. In Latin America, these tiny pests are called tizabatu, coloradillo and bicho colorado. Without some treatment, the itching will drive a person crazy enough to cause scratching. In a few cases, the bites may become infected. Some people even get so badly covered with bites that they go into shock. Under the best conditions the little red welts these mites cause are unpleasant. To make them worse, they get in places that are not easily scratched in public without causing embarrassment. They particularly like to get in tight areas beneath underwear.

Many of the people living near “chiggy grapes” have learned that its mashed leaves applied to the skin alleviates this itching. Older literature says that the leaves “expel chiggers.” We are now told that the animals never burrow, but bite and inject us with digestive fluids that cause the itching through an allergic reaction. This application of mashed leaves has been expanded to other problems, and a leaf demulsion is used against skin diseases and ulcers on the mouth. The same preparation is used against diarrhea & vomiting.

A look at the other common names makes it clear that people have used the plants for other purposes. Some are obvious from the name, others are not. Leaf decoctions have been used as depuratives, preparations that “cleanse” the body by causing it to excrete wastes. Leaves and roots are diuretic, and have been used against venereal diseases. The fruits are eaten in Hispaniola and Costa Rica, and probably throughout its range.
When plants are found that have widespread usage for the same or similar maladies, it usually may be assumed that they contain bioactive chemicals. Although not a lot is known about Tournefortia, we do know that it contains one or more pyrrolizidine alkaloids. Several unrelated plants contain variations on this group of alkaloids, and all that have been studied are poisonous. Plants containing the compounds include Crotalaria and Senna (Fabaceae), Amsinckia, Argusia, Borago, Cynoglossum, Heliotropium and Tournefortia (Boraginaceae), and Senecio (Asteraceae). Many of those species known to contain pyrrolizidine alkaloids have been used as medi-
cines. Chemicals that humans use as medicines are largely poisons, otherwise they would not work. The trick is to prepare them in ways so that they destroy the disease-causing organisms without damaging the person.

Pyrrolizidine alkaloids may harm the human body by interfering with liver function, so ingestion of preparations using them is potentially more dangerous than the malady. Yet, people have used, and continue using “chiggy grapes” and other pyrrolizidine alkaloid containing plants in medicines. A few people have done studies to see if groups using these preparations are suffering from higher

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**Chiggy Grapes**

*Tournefortia hirsutissima*

Climbing woody or basally woody shrubs or vines, climbing to 4-5 m long, sometimes longer, the stems and branches rough to the touch with stiff plant hairs. Leaves on short petioles, the blades elliptic, varying to ovate or obovate, mostly 10-10.5 cm long, rough to the touch with stiff plant hairs, basally acute, tapering gradually to the apex. Flowers in flat-topped clusters, usually a dozen or so open at one time. Sepals ovate, acute, rough-hairy. Corollas tubular, the tube 9-10 mm long, the lobes ovate to deltoid-ovate, 2-3 mm long, sweetly scented. Fruits fleshy berries or drupes, white when ripe, with a sweetish taste resembling grapes, almost globose or ovoid-globose, often with a slightly pointed apex where the style was attached, 5-10 mm long.

Growing in opening or on the edges of swamp forests or hammocks. The flowers are visited by an array of animals including gulf fritillaries (*Agraulis vanillae*) and zebra longwing butterflies (*Heliconius charitonia*).
incidences of liver problems that those not using them. The results are mixed, with some showing higher incidence of liver problems while others do not. Because the alkaloids cause liver damage in test rats in laboratories, it is thought that they cause the same or similar problems in people using the plants as medicines. That may or may not be true in all cases, because those using the plants are not extracting only the alkaloids. Instead, the people use an array of plant compounds. Could it be possible that those compounds work together to act as cures and not as liver poisons? The situation is not an either/or one, and is complicated by genetic variation in people and the plant chemicals mixed with those alkaloids in medical preparations.

Humans are actually the latest animals to discover the uses of pyrrolizidine alkaloids extracted from plants. Long before people discovered how to use the plants in medicines, insects had learned to use them in another way. Two groups of Lepidoptera are particularly well known for their use of these alkaloids – milkweed butterflies (Danainae, Danaus spp.) like the monarch, and queens, and some less well known ctenuchid moths (Ctenuchidae). These butterflies and moths are not particularly closely related, and independently they have both learned to extract the alkaloids from plants that contain them. However, only the male insects gather the chemicals. The males then use the plant cocktails to intoxicate the females of their species before they mate with them. Without this chemical inducement, the females will have nothing to do with the males. So, these moths and butterflies owe their continued existence to the plants that support their reproduction. One is reminded of the Ogden Nash poem, "candy is dandy, but liquor is quicker."

**USEFUL REFERENCES**


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**ABOUT THE AUTHOR:** Dr. Daniel F. Austin is a botany professor at Florida Atlantic University and founding member of the FNPS who has contributed to The Palmetto regularly since its beginning. At this year’s annual conference, in Miami, Dan gave an entertaining and informative talk on “Florida’s Lost Etnobotany,” a bit of the inspiration for this new series of articles.