The Palmetto

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Sundews

Discovering Florida's Ethnobotany: The People and Plant Interaction Series

With Dr. Dan Austin | Number 6 in the Series

Top: *Drosera tracy*i, placed on a post for better viewing. Pine trees in the background indicate the habitat for this plant. **Middle:** Close-up view of the leaf of *Drosera tracy*i. **Bottom:** *Drosera tracyi* dot this acid bog, an unusual type of wetland.

When I take classes where sundews grow, I challenge students to walk barefoot over these carnivorous plants to test the idea that the plants digest their prey. So far, no one has taken me up on this challenge. Even if they had, they would have no problem. The sundew's chemicals that dissolve insect prey have no impact on human feet–I tried it!

We think of sundews as stereotypical carnivorous plants that have turned the tables on their predators–eating the insects instead of being eaten by them. But this is a relatively new view of the herbs. The early Latin speakers called sundews *ros solis* or *rosa solis* (sun rose) because of a fancied resemblance to the sun. That name carried over into Spanish *(roscío del so*l), Portuguese *(rorel*a), and French *(rossoli*s). But, the sun comparison is not confined to the languages related to Latin. Norwegian *soldogg*, German *Sonnenta*u, and *sundauw* in Dutch all mean *sundew*.

In English, the first appearance of the name *sundew* seems to have been in British physician William Turner's Herbal, published in 1568. However, Gaelic speakers of western Europe had been using names for these small plants of bogs and marshes far longer. Speakers of the Celtic languages sometimes called these wetland plants *Lus na Fearnaich* (plants of the bloody-flux). That name came about because the farmers who grazed their cows and sheep in wet meadows thought the plants caused a plague in their animals. This idea had some cause-and-effect logic behind it. The plants were red; animals that grazed where the plants grew were defecating bloody-red stools. Actually, the *Fearnaich* was caused by something totally different and not the plants at all (note the danger of jumping to conclusions on limited information).

Other people noticed that cattle will not eat sundews, probably because they taste bitter and caustic. This taste may be due to the acidic polysaccharide in the plants. This acid (up to 4% by volume) is in the sticky droplets that catch insects. This material helps trap the insects and also helps kill them by clogging their spiracles (breathing tubes).

Another Gaelic name for sundews is *Lus na Ghadmainn* (plant of the insects), showing the old observation of insect-catching. Sundews were also known as *Lus na Greih* (sun plants), *Lus na eiyrts* (plants of strength), and *Lus y ghruiaghtys* (plants with a sunface). These last three names are associated with an old belief that the plants were a potent aphrodisiac. The plants clung to anything that touched them, and the leaves were used to create this clingy tendency in the person who was the object of one's affections. It probably worked as well as mistletoe.

From the beginning, these small reddish rosettes were also used as medicines. This use was the context of their first mention by Turner, and subsequently by other herbalist-physicians, including Joachim Camerarius in 1588, John Gerarde in 1597, Caspar Bauhin in 1623, and Nicholas Culpeper in 1653. These authors used phrase names for sundews, such as *Salsirora sive ros folis* (sprinkled with dew or rose leaf) and *Ros folis folio rotundo* (rose leaf with round leaves). Linnaeus liminated the phrase name in 1753 and placed the five sundew species know to him in the genus *Drosera* (Greek *droseros* = dewy).

Traditionally, the sundew was made into a tea or tincture and used to treat dry, spasmodic coughs, asthma, arteriosclerosis, chronic bronchitis, and as an aphrodisiac. For example, Gerarde thought the plants a "remedy for consumption." Their limited effectiveness against bronchial problems is due to the quinones in the leaves.

Proteolytic enzymes are the basis of sundew uses to treat warts and corns. Culpepper said that the sundew flowered in June, when the leaves were "fittest to be gathered." He believed that the "Sun rules it, and it is under the sign of Cancer. The leaves, bruised and applied to the skin, erode it, and bring out such inflammations as are not easily removed. The juice destroys warts and corns." Spurned by the medical profession of his time, Culpepper's astrological references were adapted, partly out of context, from Arabic magicians and alchemists. Such claims were popular then and remain surprisingly popular now.

Plumbagin in sundew is active against Gram-negative bacteria. Among the many Gram-negative bacteria are those causing typhoid fever *(Salmonella typh*i), food pois-oning *(Salmonella* spp., *Shigella* spp.), and Legionnaire's disease *(Legionell*a).

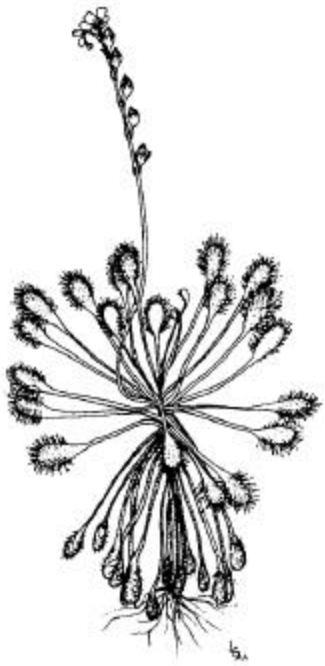
Not suprisingly, people in various parts of the globe have learned to use different species in similar ways. Sundews are used in Chinese medicines against lung diseases, dysentery, sore throat, and ear infections. Mikasuki-speakers used the plants to treat ringworm, and called them *ol· yíkcí* (ringworm medicine). Their Muskogee-speaking relatives call sundew *kil· pa hilísw*a. The Kwakiutl of British Columbia, Canada, treat warts, corns, and bunions as did the Gaelic-speakers of Europe. These Canadian Americans also used sundew as an aphrodisiac, saying that it is a "medicine to make women love-crazy."

Drosera Species

Annual or perennial low herbs. Leaves in rosettes, variable in shape, ranging from string-like (filiform) to almost orbicular, covered with reddish, glandular-tipped bristles or beaks (rosulae) resembling tentacles. Inflorescences from a stalk arising from the middle of the rosette of leaves, raceme-like, with a nodding tip. Flowers with 5 sepals, 5 white, pink or purplish petals, 5 stamens, and the ovary superior, rounded, with a 3- 5-lobed stigma. Fruits capsular, rounded, 3-valved; seeds tiny and variously striped, pitted, or otherwise ornamented.

Sundews belong to the family DROSERACEAE that contains four genera. Remarkably, these plants are related to carnations and their relatives. The four genera are *Aldrovanda vesiculosa* (Central Europe, Asia to NE Australia), *Dionea muscipula* (endemic to the Carolinas), Drosera (about 110 species worldwide), and *Droser-ophyllum lusitanicum* (Portugal, South Africa, and Morocco). All are carnivorous and grow on nitrogen-poor acidic soils or rocks. Most are either in wetlands such as marshes and bogs, although *Aldrovanda* is aquatic, and *Droserophyllum* grows in dry areas. Their adaptation of carnivory allows them to get enough nitrogen to carry out their life cycles.

Five species of *Drosera* are in Florida, with *D. capillaris* being the most common and widespread. That species also occurs in Cuba, Hispaniola, Jamaica, Puerto Rico, Trinidad, Guyana, and Central America.



Water Sundew

Two of Florida's five native sundews are imperiled. *Drosera intermedi*a, shown above, is a threatened species found in some northern and Central Florida counties.

*Drosera filliformi*s, found only in Bay and Washington counties, has been listed as endangered by the Florida Dept. of Agriculture and Consumer Services, Division of Plant Industry. Drawing from *Rare and Endangered Biota of Florida, Volume 5: Plant*s, by Daniel Ward (Gainesville: University Press of Florida, 1978).

People in India have a variant on the topical remedy, where the mashed leaves are applied to skin problems. This technique raises a blister as a "counterirritant." Such treatment seems akin to hitting oneself on the thumb with a hammer to make a headache disappear. Yet, strange as this may seem, the Indian logic sometimes works.

The same counterirritant concept applies to the modern use of capsaicin (the hot stuff) from chile peppers *(Capsicum* spp., SOLANACEAE) in over-the-counter remedies for arthritis and shingles. Western medical researchers finally found that the chemicals in the treatments "confuse" the nerve endings reporting the problems to the brain, and temporarily stop the symptoms (pain, itching, or whatever). The method does not cure, but gives relief while the body fights off the malady.

Discovery in the eighteenth century that there were carnivorous plants led to runaway imaginations in writers and sensationalists. The legend grew that there were "man-eating" plants in the jungles of unexplored lands. That myth persists, and is rejuvenated periodically in Hollywood productions, like The Little Shop of Horrors, where a monster plant demands, "Feed me!"

Some years ago I had an undergraduate ask me, in all seriousness, "Where do the man-eating plants grow?" I dutifully explained that no such organism existed, but he really did not seem to buy the story. So, I dreamed up a hypothetical case of two kinds of people-eating plants living near each other. The students were asked to use the logic techniques we had studied, and the information I provided, to determine if the plants on opposite sides of a river were different species. I am not sure they appreciated the irony of my example, but for a change, they did laugh during that exam.

Useful References

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ABOUT THE AUTHOR: A member of FNPS since 1981, Dan now works at the Arizona-Sonora Desert Museum in Tucson. He is enjoying the south-western flora and fauna around his home, including a rather aggressive road-runner that calls from the rooftop and chases other birds.

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