

Plant leaves have some most surprising scents

By Susan Yost, Ph.D.
Delaware State University

The first time that I smelled a twig of a sweet birch tree (*Betula lenta*) was on a woodland hike along the Hudson River. I think that this moment, when a friend scratched that twig and surprised me with its delicious wintergreen scent, was one of the things that led me to study botany.

I now like to share this experience with others — gently crush a leaf or scratch the twig or root of certain native plants and — wow! — lemony, root beer, spicy, bayberry, minty and even skunky!

You can find that same wintergreen scent of sweet birch in a small native evergreen plant appropriately called wintergreen or teaberry (*Gaultheria procumbens*). This scent is due to a chemical called methyl salicylate, which is used commercially as a flavoring as in wintergreen gum, and also in muscle-pain relief liniments such as Bengay. Sweet birch trees (also known as black or cherry birch) and wintergreen were the original sources of this now-synthesized chemical.

Other delicious native plant scents include spice bush (*Lindera benzoin*), a common shrub with lemon-scented leaves. The young leaves and twigs can be used to make tea, and the berries can be used as an allspice substitute.

Also in the same family (*Lauraceae*) is sassafras (*Sassafras albidum*), a small tree

Garden Tales

with spicy-smelling leaves; but it's the roots that can really knock you over with their intense root beer smell. In fact, sassafras roots were the original source of root beer, and these roots were an early export from the American colonies to Europe.

The leaves and fruits of northern bayberry and southern bayberry/waxmyrtle (*Morella [Myrica] pensylvanica*, and *M. cerifera*) have the familiar scent of bayberry candles, which are traditionally made from the waxy coating on bayberry's small gray fruits.

Both species of bayberry grow in Delaware, especially in sandy soils. Another shrub related to bayberry is sweet-fern (*Comptonia peregrina*), which also has fragrant leaves.

Other plant smells range from "interesting" to unpleasant. Hay-scented fern (*Dennstaedtia punctilobula*) is well-named for the subtle scent of freshly mown hay when you crush its leaves. Several native trees have aromatic leaves, including sweetbay magnolia, tulip-tree, sweet gum, black walnut, mockernut hickory and pines. Skunk cabbage (*Symplocarpus foetidus*) is well-named. Black cherry (*Prunus serotina*) twigs have an odor described as "rank" which is related to the presence of a cyanide-like compound.

All of the plants above are Delaware natives. If you consider nonnative plants, then the list of plants with scented leaves grows considerably, with many used as flavorful cooking herbs. Many members of the mint family (*Lamiaceae*) are scented, including basil, rosemary, oregano, thyme, lavender, as well as the obvious spearmint and peppermint.

The carrot family (*Apiaceae*) is also known for its aromatic plants, including fennel, anise, dill, and cilantro/coriander. Some geraniums (*Pelargonium*) are appropriately named for their rose, lemon, or mint-scented leaves. Other plants have bizarre scents, like *Cassia didymobotrya* with leaves smelling of buttered popcorn.

Some of these scents probably evolved to keep insects from chewing on plant parts. If you look at a mint leaf under a microscope, you can see little glands containing essential oils, which release the familiar odor when broken open.

Smells are known to evoke memories. You can gain plant sense by exploring the scent surprises in Delaware's wild plants.

On the campus of Delaware State University, the Claude E. Phillips Herbarium is Delaware's center for research, education, and outreach about plant identifications, locations, and uses. Call 857-6452 (Dr. Susan Yost, Herbarium Educator) to arrange a tour of the herbarium, or for more information about this article.



Delaware State University/Susan Yost
Sassafras (*Sassafras albidum*) is a native tree with spicy-scented leaves and root beer-scented roots. This specimen, from the Delaware State University Campus Tree Walk, is stored in the Claude E. Phillips Herbarium.