

# Ooh, that smell!

by Jon Letman, Associate Editor

Gardens in general, those of the National Tropical Botanical Garden in particular, are recognized as places of beauty where the wonders of the plant world are assembled in a setting in which they can be protected, studied, and enjoyed. A stroll through the Garden is a feast for the senses — melodic songbirds, flowing water, warm tropical sunshine and, all around, a kaleidoscope of color, texture, and form seen through gracefully arching trees and the silhouette of fronds and fruit.

But what's that smell? Something... stinks.

You pause and look around. Towering skyward, straight, columnar trees with heart-shaped seed pods hang overhead but nothing indicates the source of the smell. Then you look down and there, at your feet, are hundreds of small rust-colored flowers with curved petals and a prominent hooked stamen. Euphemistically called the Java olive tree, or less generously, the skunk tree, the botanical name *Sterculia foetida* alludes to the flower's objectionable scent. *Stercus* is Latin for dung and *foetida* means foul-smelling.

Native to tropical Asia, *S. foetida* grows in the McBryde Garden near the pond in the upper Lāwa'i Valley and also in the heart of Allerton Garden, surrounded by a dense patch of green-striped bamboo.

When informally surveyed, about nine in ten garden visitors find the flower's smell disagreeable. They compare it to a musty closet, mothballs or "something old." The remaining 10 percent, however, take a second whiff and say, "oh, I like that."

Fragrance, it seems, is indeed in the nose of the beholder.

A little further down the Lāwa'i Valley stands a handsome leafy tree called *Treculia africana*, native to forests of tropical Africa where it is known as *mwaya* in Swahili, *muzinda* in Luganda or African breadnut in English.

The fruit is generally a bit smaller than a bowling ball and ranges in appearance from glowing bright green with dense golden needles (young) to deep green with wart-like bumps and black needles (mature) and eventually drab olive green and plagued with menacing black cavities and a few sad needles that remain only in broken patches. The fallen fruit is the color of a rotten gorilla paw and smells of extreme decay.

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## This is pollination by deceit

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Still other plants in the garden produce smells that have been compared to rotting meat (*Amorphallus lambii*), fermented cabbage (*Crescentia cujete*), and a neglected litter box (*Duabanga grandiflora*).

The Kampong's living collections include *Ceratonia siliqua* (carob tree) and *Antidesma bunius* (bignay) which have been described as "somewhat ill-smelling" and "smelling of fish," respectively.

Other tropical fruits like durian and noni have gained notoriety and acclaim for, or in spite of, their distinctive smell. Still other plants in NTBG's living collections attract maggots, flies, and bats with their penetrating odors.

What is it that makes fruit or flowers smell bad?

"It's entirely subjective," says Dr. David Lorence, Director of Science. "If you were a fly, you'd probably love some of those smells."

Whether it's a flower that looks or smells like rotting flesh, a particularly smelly fruit, or a morphological construction like the slightly grotesque shape of *Aristolochia gigantea* blossoms, it's all about attracting

pollinators to flowers or seed dispersers to fruits. The plant world’s strategies for ensuring reproduction are as varied as they can be smelly.

Unlike what most people think of as showy, pretty, fragrant flowers which have evolved to attract birds and bees, many “stinky plants” are pollinated by animals and insects such as bats and flies.

Characteristics like shape, color, size, and smell are associated with pollination syndromes which flowers develop to best accommodate their pollinators.

Dr. Lorence explains, “Bird-pollinated plants, for example, tend to have sucrose-rich nectar. A bright red flower like a hibiscus will attract birds which don’t have a well-developed sense of smell, but have good, keen vision.”

“Certain groups of plants have gone in a certain direction, like the *Amorphophallus*, which tends to have a bad stench and is pollinated by flies. Other related genera like philodendrons have a more fruity smell that attracts small beetles. A lot of it is just a ploy by the plant to get the insect.”

Some plant smells aren’t so easily identified. Growing beside the Lāwā’i Steam, *Lecythis pisonis* (Brazil monkey pot tree), has pretty lavender and white flowers reminiscent of sea anemones, but the smell is curiously unpleasant, something this author describes as vaguely industrial.

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▼ The *Treculia africana* or African bread nut tree (McBryde Garden) produces an enormous fruit, which emits a smell that attracts seed-dispersing animals. Photos by Jon Letman





▲ The curious beauty of *Lecythis pisonis* (left) and *Sterculia foetida* (right) flowers belie their repellent odors. Location: McBryde Garden. Photos by Jon Letman

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Other flowers are less subtle.

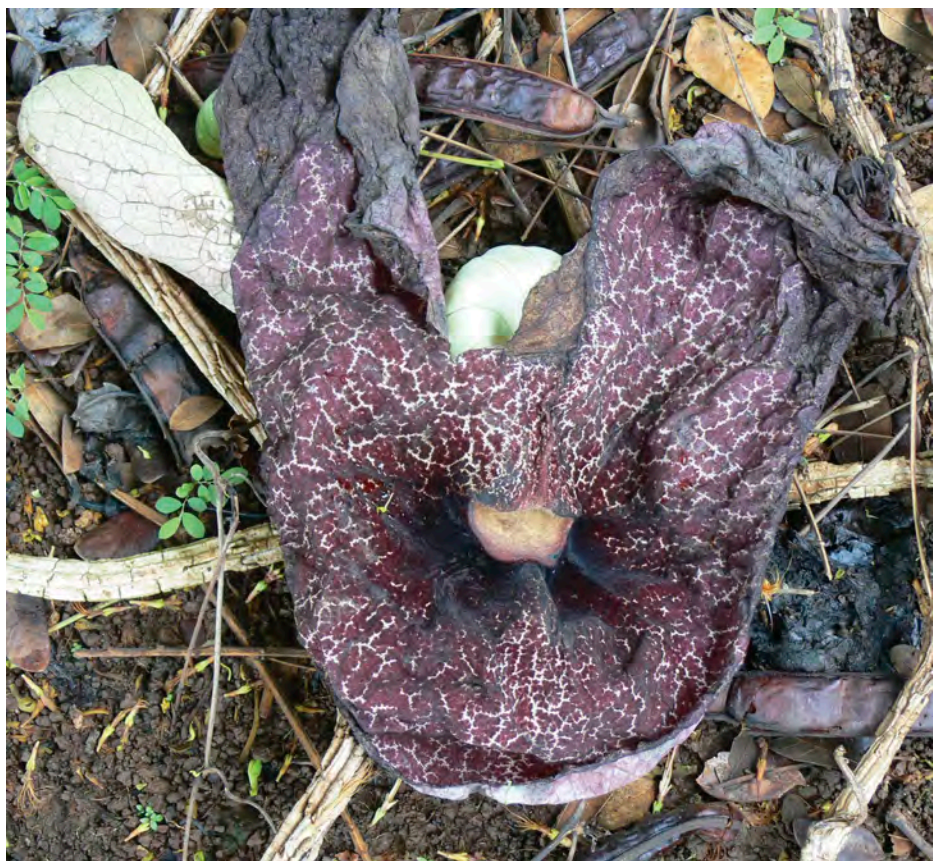
Beside Headquarters a large *Duabanga grandiflora* blooms in the spring. These flowers have masses of glands outside the flower bud called osmophores which produce floral smells, both good and bad. When the flowers open they release a powerful tangy odor which has earned the tree an unfortunate name which indicates it may have been visited by a cat.

*Sapromyophilous* plants are those that mimic carrion or excreta in smell, color, and texture to attract dung flies. One well-known example found by Pump Six in the McBryde Garden is *Stapelia gigantea* which resembles a hairy meat starfish growing on a cactus. Because *Stapelia* grows low to the ground it is easy to miss, but those who crouch down low to sniff will find it has a bouquet which may be nauseating to humans, but is irresistible to flies which use the flowers as a maggot-hatching ground.

For all the beauty and fragrance in the botanical world, there is no shortage of stench, but all with a purpose and in the service of plant diversity.

And just as not everyone appreciates the smell of roses, so too, does the durian have its admirers.

Pondering malodorous tropical plants like a child on Santa's knee,



▲ *Aristolochia gigantea*'s decayed appearance and smell lure flies. The plant then holds the insects captive within its floral cavity. Location: McBryde Garden.  
*Photo by Jon Letman*

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Kampong's Curator of Living Collections David Jones is hoping one day he'll get the infamous parasitic *Rafflesia* of which he says, "it's on my garden wish list – it smells like a rotting corpse."

*Don't be put off by these pungent plants...  
there are thousands of delightful smelling plants  
in NTBG's gardens.*

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