Perfect Poison
Peppertree Potions

"What a pretty tree!"
That's what people thought when they imported the Brazilian peppertree from South America. They liked its shiny green leaves and bright red berries. The peppertree, also called “Christmas berry” and “Florida holly,” was first brought to Florida more than 100 years ago. Gardeners thought it would look nice in their yards and hedges.

Outlaw Tree
But the peppertrees spread like weeds. They escaped gardens and grew wild. Today, peppertrees cover more than 700,000 acres in Florida. That's an area larger than the state of Rhode Island! Peppertrees have crowded out native mangrove and pine trees. They grow quickly and shade out other plants. And peppertrees have an even sneakier trick. When their pretty red
berries fall and get crushed, they release a poison that stops other plants from sprouting nearby. That makes more space for the peppertree.

Now peppertrees are outlaws. In Florida, it's illegal to plant any more. Wildlife experts say that to protect native plants and animals, all the peppertrees must go.

Quave's team tested different chemicals found in the berries to see if any killed germs. Sure enough, one substance, with the fun name Extract 430D-F5, stopped *Staphylococcus* bacteria from growing. Staph are a common kind of bacteria that live everywhere. Usually they're harmless. But sometimes they can turn nasty and cause sores and rashes.

Staph infections are usually treated with antibiotics, medicines that kill bacteria. But some bacteria resist the antibiotics. These are known as "superbugs," because

Peppertrees to the Rescue

Cassandra Quave is a botanist, a scientist who studies plants. She grew up in Florida. Like most Floridians, she considered the peppertree a weed. But several years ago, she was reading an old book about plants. It talked about healers in the Amazon using peppertree berries to treat infections. She decided to take a closer look.
Plant Scientist on the Case
Cassandra Quave knows how nasty superbugs can be. When she was three years old, she developed a serious infection after an operation on her leg. Doctors had to remove parts of her leg muscle and bone. Today Quave uses an artificial leg. This experience inspired her to help others fight tough infections. She originally planned to become a doctor. But after college she traveled to Peru and discovered the amazing healing powers of plants. Many are not well studied. So she became an ethnobotanist—someone who studies how people use plants. She hopes her work will help to develop new medicines based on traditional plant remedies.

ordinary medicine won’t kill them. They can cause bad infections that are hard to cure.

Doctors are always looking for new ways to treat superbugs. When Quave’s team gave Extract 430D-F5 to mice infected with superbug staph, the mice got better. Their skin sores healed. This was great news!

The team discovered that the peppertree potion doesn’t kill bacteria. Instead, it stops bacteria from signaling to each other. Normally, staph bacteria work together to make toxins. These toxins are what cause illness. The berry extract stopped the bacteria from teaming up to make toxins. Then the mice could fight off the infection and didn’t need antibiotics.

So—the troublesome peppertrees might end up giving us new ways to treat dangerous infections. Is their bacteria-blocking power related to their trick of blocking other plants? And how exactly does it work? We don’t know yet—there’s more work to be done!

Quave and her team plan to keep studying Extract 430D-F5. It will take a while to turn it into a treatment that is safe for humans. But at least they know it won’t be hard to collect the berries—those peppertrees grow like weeds.