EMORY

WINTER 2018 + MAGAZINE + VOL. 93 NO. 3

MINDS AT WORK

Special Research Issue

GAINING ON CANCER + HALTING HABITAT DESTRUCTION + TRAVELING IN TIME + EXTENDING BRAIN HEALTH + SUSTAINING GREAT SCHOLARSHIP

The Power of Plants

> IF YOU LOOK AT THE SCIENCE, YOU CAN SEE THERE IS A LOT OF POTENTIAL IN PLANTS.

GROWING NEW CURES Cassandra Quave leads antibiotic drug discovery research focused on identification and analysis of botanical remedies used in the traditional treatment of infectious disease.

Cassandra Quave, an ethnobotanist with Emory College's Center for the Study of Human Health, elicits a handful of nods when she asks whether her students have seen or grabbed a bottle of aloe juice at a high-end grocery checkout.

So-called green juices are restorative, according to ads propped up by the bottles. *Good for the skin*, one student murmurs.

But today Quave is talking to her medical botany class about plants used for gastrointestinal needs. She explains that an Egyptian medical papyrus of herbal knowledge, dating to 1550 BC, first identified aloe vera as a treatment that still works today: the stimulant from the family of flowering plants solves constipation by quickly speeding up the colon muscles.

"It always makes me laugh, because it's basically a jug of laxative that people shouldn't be chugging, but will, right as they stand in line," Quave says of the neon green aloe juices. "It makes me wonder if they make it home without stopping."

From aspirin to the chemotherapy drug Taxol, some of the world's most common and important medicines come from plants.

Quave's Botanical Medicine and Health course combines botany, chemistry, anthropology, and pharmacology to give students the practical ability to suss out what is marketing and what is science when it comes to plant-based "cures" such as the aloe juice.

With a patent on a compound she teased from the roots of an elmleaf blackberry that helps battle antibiotic-resistant staph, Quave is a sought-after instructor. She starts with the ancient history and cultural interactions of botanical medicine before zipping through the plants that form the basis of drugs for everything from infectious diseases to cancer and the safety and ethical issues in ongoing research.

"Once they understand the Latin names of the plants and see how related species share chemistry, they can connect the dots to see how it all works," Quave says. "That's when it is really great, because so many of them say they think about the world and their health in a whole new way."

A course that details the plant compounds and the underlying mechanisms of action of botanical drugs is also a prime example of the human health program, a pioneering effort that highlights Emory's diverse efforts in health education, research, and the liberal arts.

Stephanie Pintas 18C, a human health major, says the course has reinforced her plans to focus on integrative medicine—with its approach to preventive, holistic care—after medical school.

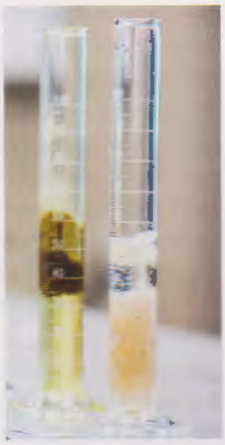
Pintas had her own success in researching apple cider vinegar as a treatment for skin fungal infections. The acidic pH of the vinegar can balance the alkaline pH that comes from such infections, effectively slowing the growth of the fungus.

"Homeopathy has given botanicals a bad rap, I think. But if you look at the science, you can see there is a lot of potential in plants. It's good science," says Pintas, who is further exploring her research in Quave's lab as part of her honor's thesis.

Such knowledge is important not just for would-be physicians but also for anyone who wants to think more deeply about their own health care.

First-year student Kat Bagger 21C developed an understanding of the fine line between toxicity and treatment that comes with plant-based medicines.

Digitalis, for instance, comes from the poisonous foxglove plant, but controlled use of the plant's cardiac glycosides helps with congestive heart failure.



"I was one of those people who thought natural meant safe, but it's so much more complex than that," says Bagger. "It's so eye-opening."—*April Hunt*

PHOTOGRAPHY KAY HINTON