Finding medicinal benefits of plants

By **CARL NATHE**

Key Points

- Research seeks resources to unlock medicinal compounds in plants.
- The Medicinal Plant Consortium was formed to find medicinal answers.
- The periwinkle plant is a source for widely used chemotherapy drugs.

SCIENTISTS at Purdue University and eight other institutions have developed new resources poised to unlock another door in the hidden garden of medicinally important compounds found in plants.

The resources were developed by the Medicinal Plant Consortium, led by the University of Kentucky College of Agriculture. They grew out of a $6 million initiative from the National Institutes of Health to study how the genes of plants contribute to production of various chemical compounds, some of which are medicinally important.

Natalia Dudareva, a Purdue professor of horticulture and landscape architecture, was part of the research team. Dudareva's work included research on rosemary, a fragrant shrub often used in perfumes and cooking that produces a variety of pharmacologically active compounds.

PURDUE AGRICULTURAL COMMUNICATION PHOTO/TOM CAMPBELL

ROSEMARY STUDY: Natalia Dudareva, a Purdue University professor of horticulture and landscape architecture, is using rosemary plants to study how genes produce pharmacologically active compounds.

"This grant allowed for the work of scientists from a number of different universities, with many different areas of expertise," Dudareva says. "We hope the discovery of plant genes leads to new and more effective drugs."

Plant medicines

Some well-known medicines have come from plants. The foxglove plant gives us the cardiac muscle stimulant digoxin, and the periwinkle plant offers a source for the widely used chemotherapy drugs vincristine and vinblastine. These and many other medicinal plants, are commonly found in household gardens and flower boxes, and represent cornucopias of compounds ripe for discovering and developing diverse medicinal applications.

To develop the resources, the researchers studied the genes and chemical composition of 14 plants known for their medicinal properties or compounds with biological activity.

These included plants such as foxglove, ginseng and periwinkle. Altogether, these efforts are now providing a rich toolbox for researchers to discover the means for how nature's chemical diversity is created, empowering efforts to uncover new drug candidates and increase the efficacy of existing ones.

"There are compounds in rosemary that have been a part of traditional medicine for a long time, although we still don't understand how the plant biosynthesizes them," Dudareva says.

The work of the Medicinal Plant Consortium included obtaining materials for all of the medicinal plants used in this study. The group then determined the plants' chemical profiles and obtained their genetic blueprints.

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