www.chicagotribune.com/news/local/chicago/chi-medicinal-garden-city-zone-0jul08,0,7485160.story

chicagotribune.com

University of Illinois at Chicago's healing garden

Medicinal plants offer more than ornamentation

By Angie Leventis Lourgos

Special to the Tribune

July 8, 2009

Although a weeping willow might appear humble, the common tree is actually quite remarkable: A natural pain reliever found in its bark taught scientists how to make aspirin, the household defense against headaches and heart attacks.

Ginger reduces nausea and improves digestion. Lemongrass treats ringworm, lice, athlete's foot and scabies. And ongoing local research has shown that extract from birch tree bark kills melanoma -- a potential breakthrough in skin cancer treatment.

These natural remedies all grow in a small courtyard at the corner of Wood and Polk Streets on the University of Illinois Chicago Medical Center campus. More than 140 species are cultivated there throughout the year by the College of Pharmacy to educate students on medicine's lineage, as well as provide raw material for new drug research.

"It's beautiful. It's very precious. And it's a great opportunity to see a diversity of plants," said curator Djaja Soejarto, a professor of pharmacognosy who has been on more than 60 expeditions around the world in search of undiscovered plants that might alleviate pain, illness or discomfort. (Pharmacognosy is the study of medicinal products of plants, animals and minerals in their unprepared state.)

Later this month, he'll be giving the public a guided tour of UIC's medicinal plant garden, as well as some of the college's drug research facilities.

Though it's usually open to passersby, the below-street-level courtyard is at first glance undistinguishable from an ordinary garden. A few book readers and lunch eaters enjoy the atmosphere, but most are unaware they're surrounded by digestive aids, antiseptics, anti-inflammatories, sedatives, diuretics, anti-depressants and the like.

Placards tell each plant's genus, species and common name, but not its healing properties. A sign does warn visitors not to ingest anything and that the university isn't liable in the event of accidental

poisoning.

Jennifer Reckwerdt, an employee at a campus medical clinic who occasionally spends her break here, was surprised to learn the pink and white flowers lining the edge of a water fountain were Madagascan periwinkle, which contain an anti-cancer agent.

Each year the university re-grows the tropical flower in a conservatory about 30 miles from campus to protect it from the cold, and replants it in the garden when the weather is warm.

"I thought they were decoration," Reckwerdt said.

Among the more exotic bushes, flowers and herbs is a seemingly mundane birch tree.

University researchers were testing unfamiliar plant material collected on an expedition to Zimbabwe and found that its extract killed melanoma. Further testing revealed that the anti-cancer compound was betulinic acid -- which also was present in the common birch.

UIC scientists have a patent, and are testing birch bark in the hopes of one day providing the public with an Food and Drug Administration-approved skin cancer treatment.

The garden also includes black cohosh and red clover, two plants being tested at UIC to treat post-menopausal symptoms.

The research process is long, tedious and expensive. Soejarto estimates that the entire discovery and development of one drug can take more than 10 or 15 years, at a cost of around $750 million.

It often starts with ethnobotany, the study of how other cultures use vegetation. Researchers such as Soejarto travel the world to learn how indigenous people use native plants -- often unknown in the United States -- to treat maladies from everyday discomfort to fatal disease.

Teams of botanists, chemists and biologists test plant extracts hundreds of times to determine whether it works, which compounds are effective, the proper dosage, and whether the prospective drug is tolerated by animals and then humans. There are several rounds of FDA approval.

"You observe, you develop, you adapt," Soejarto said.

UIC's medicinal garden was donated by the husband of 1945 College of Pharmacy graduate Dorothy Bradley Atkins, after she died in the mid-1990s. The garden was named after her when it opened seven years ago. Improvements and public outreach are funded by donations.

There are similar gardens at the University of Mississippi, the University of Rhode Island, the University of Minnesota, as well as other schools across the United States and in other countries.

Soejarto took over as curator of UIC's medicinal garden in 2004.

The botanist was born in 1939 in a village of fewer than 500 people near Surakarta, Indonesia. His father was a rice farmer, so he decided to study agriculture when he went to college, assuming he, too, would grow rice.

He took a course in plant taxonomy, the study of classification, with the Dutch scientist A.J.G.H. Kostermans, who would become his mentor. Soejarto became fascinated with how plants evolved and how they can be used. Deciding that the study of medicinal plants was his calling was not an epiphany, he said, but "an evolution."

He left Indonesia in 1963 to get his master's and doctoral degrees at Harvard University, an opportunity he never dreamed of as a youth. During school and after graduation he studied plant life in Colombia, South America, where he met his wife. The couple now live in Lombard. (And yes, they keep a large garden, growing more than just your typical geraniums.)

He came to UIC in 1976, and has since traveled to Southeast Asia in search of plants that might treat cancer, AIDS, malaria and tuberculosis. His most recent trip was to Vietnam last month.

He also has served for more than 30 years as a research associate at The Field Museum's botany department, which started as a plant display from the 1893 World's Columbian Exposition. Today the collection includes around 2.6 million dried plant specimens.

Soejarto estimates that he's added around 20,000 specimens to the museum's herbarium from his expeditions.

Though the flowers, trees and shrubs in a medicinal garden eventually will wither and die, the preserved specimens at the museum will continually educate the public on the healing properties of vegetation.

"It supposedly will last forever," Soejarto said.