

Medicinal Chemistry Professor's Idea Flow Freely at KU

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Kansas University Distinguished Professor Barbara Timmermann has traveled all over the world to learn more about how plants can improve human health. But one recent trip stands out in her mind as particularly special.

In April, she traveled to Alexandria, Egypt, for the BioVision Alexandria 2010 Conference, where she was scheduled to give a presentation titled "Biodiversity, Nature and Health — From Research to Policy." Among those in attendance were five Nobel laureates in chemistry, economics, medicine and physiology.

"It was very rewarding to be invited to speak in such august company," Timmermann said. "Meeting with scientists from different disciplines, getting new knowledge, exchanging ideas — it's very rewarding."

This kind of exchange of ideas across a range of subject areas is important, she explained, because "you get your knowledge flowing freely, and that opens your mind to new ideas that might not have occurred to you in a closed place." For her, KU embodies this ideal.

"What I like about KU is the sense of community," she said. "There's a sense of belonging here. Also, there are no walls between departments and schools here. You can speak with philosophy professors, history professors — it's like everybody is here to bring the best out of each other."

She said she also sees this strong sense of community in the department of medicinal chemistry, which she chairs. "It's very collegial, almost like a family," she said. "This is very unusual to find in a place where you have very high-powered scientists."

Timmermann came to KU in 2005 from the University of Arizona where she was a regents professor, one of Arizona's highest honors. In addition to being a department chair, she leads the COBRE Center for Cancer Experimental Therapeutics, a program that is funded by the National Institutes of Health.

She also researches the chemistry of natural product-based botanical medicines. She is studying, for example, the effects of ginger, turmeric and green tea. Ginger is being studied for the prevention of inflammation. For turmeric, she is examining possible prevention of bone metastasis in breast cancer patients. And with green tea, she and her colleagues from the University of Arizona have investigated a topical solution from catechins, the main components of green tea, as protection against skin cancer.

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“Many people all over the world are studying green tea,” she said. “All the studies point out it is a very effective antioxidant.” She added, “In Japan, where people drink large amounts of green tea, people tend to live longer lives.”

She was drawn to this area of study because, she said, she was “always fascinated by nature.” Her task as a scientist, she explained, is to “unravel what is the chemistry behind these substances. We try to apply modern techniques to see if there is truth to the claims.” Still, it’s a field that hasn’t received as much study as it deserves and needs, Timmermann said.

There just isn’t as much funding available for such studies as there is for research into potential new drugs. There are also few regulations governing its use. For example, even though Timmermann has conducted extensive research on ginger, she can’t recommend any particular brand of ginger-based dietary supplement because there’s no simple and quick way of determining the quality of the ginger in any given product.

“I’ve worked with ginger and turmeric for years, but I can’t tell you how much to take because they’re all different,” she said. “We just don’t know.”

The best advice she can offer is to choose products from companies that have been around for at least 10 years. She has traveled the world to research natural-based medicines. In the process, she’s also become a champion of ecological preservation.

“We work with host countries to establish botanical gardens and biological preserves,” she said. “For instance, outside of Santiago, Chile, we helped establish a botanical preserve.” She’s also working close to home. In partnership with Kelly Kindscher, a botanist with the Kansas Biological Survey, she won a \$5 million grant to study medicinal plants of Kansas. The project began last October with the collection of plants from around the state known to be of traditional medicinal use, such as many varieties of sunflower and echinacea, among others.

“Almost everything that is out there,” Timmermann said.

The new School of Pharmacy building on West Campus will be inaugurated this fall, and it will include a museum and a garden with medicinal plants. The garden should be in full bloom by next spring.

“I hope that people from Lawrence can come and learn,” she said. “I hope this can be an attraction instead of a rose garden.”