

World

SECRETS OF ANCIENT MAYA CURES

Healers in Mexico want a halt to bioprospecting

By MICHAEL RILEY
Special to the Chronicle

CHENALHO, Mexico — A Maya woman with a face that seems to reflect the knowledge of centuries leans over a pot, tweaks a handful of herbs and drops them into the boiling water.

She fans the charcoal fire set in the windbreak of rocks, and the bubbling brew of medicinal herbs turns an acrid green.

The woman, a healer, follows a recipe hidden somewhere in her memory, an artifact of an ancient culture passed like a precious stone from generation to generation since before Columbus.

Nearby, an American researcher dressed in a neon-blue rain slicker and hiking boots studies the woman as she works. An ethnobiologist from the University of Georgia, Brent Berlin directs a U.S.-funded research project designed to develop modern drugs from the medicinal plants that grow in the highlands of Mexico's southernmost state of Chiapas.

As he watches the woman prepares a millennium-old cure for diarrhea, he worries that the secrets locked in this and other Maya Indian rituals could become lost forever.

At the dawn of the 21st century, the most valuable treasure hidden in Mexico's vine-choked jungles and misty highlands may not be gold or oil but knowledge. Ancient medical traditions could contain critical clues to cures for modern plagues such as cancer, AIDS and Alzheimer's disease.

But, as in the Amazon basin, Fiji and other places, a fight over that treasure has erupted between its traditional guardians and the scientists and corporations who want to put the age-old secrets to a more modern — and profitable — use.

A group representing traditional Maya healers in Chiapas has demanded that the Mexican government stop Berlin's project until laws are passed to protect them and their traditions from bioprospecting, as advocates call the research, or biopiracy, as it is tagged by critics.

Government officials seem to be heeding at least some of the healers' concerns.

Earlier this month, environmental authorities told Berlin that they intend to withhold permits needed for the collection and analysis of native Chiapas plants, at least until project staffers submit a revised plan for obtaining the "informed consent" of Maya communities.

Though Berlin says he will reapply for the permits, the government's decision is casting a shadow over his five-year, \$2.5 million project.

The controversy surrounding studies such as Berlin's reaches far beyond Chiapas, however, touching researchers in First World university laboratories as

well as drug-company stockholders.

Its sweep takes in the ethics of the science of biotechnology, the fight over the potential riches that could result if researchers develop a major new drug and the growing assertiveness of indigenous rights groups that view the mining of their cultures as modern-day colonialism.

"Indigenous peoples are saying they no longer want to be used as objects of study. They don't want to be used as some kind of steppingstone for the patenting of their resources and their traditions," says Ana Valades, an adviser to Compitch, an indigenous organization that represents hundreds of traditional healers and midwives in Chiapas.

"The scientific community," Valades says, "doesn't seem to have patience with this new voice, this new self-confidence of indigenous peoples."

Thousands of miles away, in an office in Bethesda, Md., patience

is far from Joshua Rosenthal's mind. The director of six bioprospecting projects funded by the National Institutes of Health, including Berlin's, Rosenthal believes that time is running out for scientists to study the medical traditions of ancient cultures such as the Maya's.

"There's a danger that we will lose the option to preserve this knowledge as the biodiversity and these traditional cultures disappear," Rosenthal says.

Berlin, 64, has devoted much of the last 40 years trying to make sure that doesn't happen. Berlin and his wife, Elois, a medical anthropologist, have walked Chiapas' mountains since 1960, spending part of each year watching traditional healers use plants almost unknown to modern science.

They are conducting their current project, now in its second year, in conjunction with a small British pharmaceutical company called Molecular Nature, as well as a group of Mexican researchers from Ecosur, a university in the Chiapas town of San Cristobal de las Casas.

Project staffers have collected more than 300 Maya recipes for the treatment of illnesses.

"The opponents (of this project) are saying: 'These are my marbles, and you can't have them,'" says Berlin, as he guides a visitor through a garden of medicinal plants. "But the really smart countries will see that this can be an amazing benefit for everyone, including the indigenous peoples."

Berlin acknowledges that the odds of finding a cure for cancer through his research are "less than winning the Mexican lottery." Still, he feels confident that beneficial drugs would result if the work continues to go forward.

Laboratory tests already have shown that one plant used by Maya healers is effective against



Janet Schwartz / Special to the Chronicle

Maya Indian women in Chenalho, in the state of Chiapas, Mexico, prepare traditional medicine made from tree sap. Chiapas healers are battling

to keep their age-old recipes and the native plants from scientists and corporations who want to make a profit from them.

a yeast infection common in women. In AIDS patients, the infection often turns virulent.

"There still need to be toxicology tests, but if we could get a drug that could fight this, wow, what a benefit to AIDS patients that would be," Berlin says.

He believes that the study of other Chiapas plants could lead to the development of effective drugs for diarrhea, a condition that causes hundreds of thousands of deaths in the developing world each year, as well as new antibiotics.

Even without the government permits that would allow them to collect plants and analyze them, the Berlins and their team can continue to observe and interview healers.

Indigenous activists who believe that the Maya have been marginalized for centuries vow, however, that their people will not be taken advantage of again.

Some want to make sure that the Maya get a fair share of the profits that result from the devel-

opment of any new modern drug. Others see Berlin's research as an affront to indigenous beliefs, which hold nature sacred and beyond the ownership of anyone.

"The old ones say that living things are for everyone. You don't sell life," says Esteban Ordiano, an activist for Compitch.

Ordiano's group, which acts as a guild for the region's healers, runs a traditional pharmacy, maintains a garden of medicinal plants and trains young people in the art of treating illnesses with herbs.

Traditional healers work in nearly all of the hundreds of villages that dot Chiapas' hills and forests, enjoying the prestige and authority of small-town doctors. For many of the region's people, a visit to a modern medical clinic would mean a six-hour bus ride or a two-day hike.

Centuries of rough-hewn trial and error, medical anthropologists say, have spawned effective treatments for many of the illnesses common in the region. For

instance, there are dozens of formulas for treating respiratory infections, an ailment common in the mist-covered mountains where mud homes are heated only by small fires.

The controversy over the effort to study those traditional remedies is fueled by a legal debate taking place across the globe.

Who owns the world's biodiversity? Can companies patent knowledge that, in its raw form at least, is thousands of years old? Can the genetic codes of organisms be considered property in the same way that a steel factory or an apartment building can?

The debate is relatively new. In a landmark case in 1980, the U.S. Supreme Court decided for the first time that a microbe could be patented, giving ownership rights over a biological species to a private company. Though the 1980 decision was based on genetically engineered bacteria, it has had wide ramifications.

Companies and entrepreneurs have rushed to patent organisms

that, they believe, may have a commercial value.

Those who say that projects such as Berlin's pose the threat of new colonial abuses point to the example of a Colorado-based seed company that bought a sack of yellow beans in northern Mexico in 1994. The company brought the beans to the United States and, after two years of selective cultivation, won a patent there.

The company, POD-NERS LLC, later filed suit against U.S. importers of Mexican yellow beans, claiming they must pay it a royalty, even though farmers south of the border have been growing the beans for centuries. The Mexican government has vowed to fight the patent in U.S. court.

In another case, L'Oreal, the French cosmetics giant, won a U.S. patent for kava, a ceremonial plant used for centuries in Fiji and Samoa. Over the objections of tribal leaders, the company is working to develop from the plant a commercial product that could fight hair loss.

In Costa Rica, a local company, INBio, signed a \$1 million contract with Merck to provide the pharmaceutical giant with specimens of plants from that country's biological reserves. But similar species also grow in Colombia, and indigenous activists there are claiming the deal violates their rights over the same plants.

In the United States, the drug company IPMC won a patent for ayahuasca, a medicinal plant used by people in the Amazon basin that researchers believe may be useful in the development of psychotropic drugs. Tribal leaders flew to Washington to object, and the U.S. Patent Commission later withdrew the patent.

Berlin, a former president of the International Society for Ethnobiology and author of part of the society's ethics code, says he has tried to address some of the concerns raised by indigenous peoples.

To meet Mexico's requirement for informed consent of the communities in which his research is taking place, Berlin and his wife created a theater group that travels from village to village staging plays about the project.

Under the project's bylaws, Berlin says, 25 percent of the profits from licenses for any drugs that result would return to Maya communities in the form of development projects. Plants used to make the drugs would have to be grown in Chiapas, he adds, creating the potential for a biotech industry in the state that could raise living standards and preserve the native culture.

Members of Compitch say, however, that their first priority is to make sure that the traditions of the Maya are protected.

The 50 communities in the Chiapas highlands that have given their initial consent for Berlin's project to go forward represent only a fraction of the region's Maya people, Compitch activists complain.

Members of Compitch maintain that the Mexican government should regulate bioprospecting and prohibit pharmaceutical companies from receiving patents on drugs derived from traditional medicine.

Such a move, Berlin says, would endanger the Chiapas project as well as many others. Pharmaceutical companies won't participate in such research, he says, without assurances that they will receive the commercial rights to any drugs that result.

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