Biodiversity and Health: Are we killing the plants that can cure?

In developing countries, traditional herbal remedies are often the first line of health care for most of the population. (IDRC Photo: Daniel Buckles)

2004-02-13

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Getting a cold? Take some echinacea. Feeling stressed? Try a little ginseng. Worried and depressed? Perhaps some St. John’s wort will pick you up. The growth in popularity of these and hundreds of other herbal remedies in Europe and North America has created a multi-billion dollar industry over the past two decades — $27 billion in the US alone in 2001.

While the trend may be new, most of these “alternative medicines” are not. (See related sidebar: A Cure by Any Other Name) These are your grandparent’s cures. Some are effective, some are not. Most, though not all, are at least harmless. Recent research suggests, however, that plant-based medicines — phytomedicines — may be the key to curing some of the world’s most serious diseases, possibly even AIDS (see related article: Recognition and Respect for African Traditional Medicine).

In developing countries, traditional herbal remedies are far from a trend. Widely used for millennia, they continue to be the first line of health care for most of the population. A 20-year-old statistic from the World Health Organization (WHO) suggests that 80% of the world’s people rely on traditional medicines and traditional systems of medicine for day-to-day health care. And there is little to suggest that this has changed during the two decades in which the people of the North have been rediscovering herbal remedies.

Danger of extinction

The combination of new markets and population growth has led to a very real concern for the conservation of many of the thousands of plants that are used in traditional medicine. This was one of the principal topics of the International Symposium on Biodiversity and Health that took place in late October 2003 in Ottawa, Canada. Jock Langford, Senior Policy Advisor at Environment Canada, summed up the dilemma bluntly when he told some 120 delegates: “As an economist I can
recommend using a range of innovation policies to encourage new R&D leading to the
development of new medicines, but as a scientist I don’t know how to advise researchers working
in 2050 on how to make new medicines from extinct species.”

The importance of maintaining biodiversity and the sustainable use of medicinal plants was
emphasized throughout the symposium. Maurice Strong, former head of the United Nations
Environment Programme (UNEP) and chair of the Earth Summit in Rio de Janeiro, made the point
in a keynote address to the symposium. “Biodiversity is fundamental to every aspect of our lives
and livelihoods, including our health,” he stated.

“Medicinal plants can play an important role in restoring degraded landscapes. Under conditions
needed for sustainable agriculture, they can contribute to farming system diversification and to
improved soil fertility. In many cases medicinal plants provide an important source of income for
the rural poor, especially for women.”

“Thus, recognizing the importance of medicinal plants, and capitalizing on the knowledge of their
use by traditional healers in primary health care, offers a unique opportunity to link three key
poverty-related indicators: environment, rural development, and health,” Strong added.

Forests under assault

Making the most of those linkages will be difficult, however, if medicinal plants continue to be
used in non-sustainable ways. According to Sonia Lagos-Witte, regional coordinator in Central
America for TRAMIL, a program of applied research for traditional medicine in Latin America
and the Caribbean whose work was supported by the International Development Research
Centre (IDRC), the world is losing 50 hectares of forest every hour. “If we are to effectively
conserve biodiversity in the long run we must understand the processes that lead to their
sustainability. This means encouraging the conservation of both medicinal plants and traditional
knowledge,” she told the symposium.

The threat to some wild plants comes, in part, from poor harvesting techniques, cautioned Myles
Mander, of the Institute of Natural Resources, South Africa. “Eighty percent of the plants used will
probably die as a result of harvesting,” he said. “Also forest clearing and desertification have
affected supply so that both quality and quantity is dropping and there is increasing competition for
dimining plant stocks.”

The problem is widespread. Even in Madagascar, an island renowned for its biodiversity, the rate
of deforestation is alarming. Philippe Rasoanaivo, who is responsible for traditional medicine in
the Ministry of Health in Madagascar, pointed to one cause of the problem — poverty. “Poor
people are causing deforestation because they are poor,” he said, “and must do whatever they can
simply to survive.”

The low cost of traditional medicines and healers is one of the reasons for their popularity, said
Messanvi Gbeassor, from the University of Lomé, Togo. To help conserve the resources he
stressed the need for more structure in both the production and use of traditional medicine,
recommending that departments of traditional medicine be included within ministries of health, as
well as professional associations for practicing healers. He also called for more local and
international investment. “Most of the research funding comes from outside Africa, so it doesn’t
necessarily meet the needs of the country or the local people,” he said.
Poverty, one culprit

The need for poverty reduction and economic incentives was echoed by Jeffery McNeely, an anthropologist and biologist currently working on a biodiversity and health project for the WHO and UNEP. “Most developing-country governments are more interested in generating wealth than they are in eliminating poverty,” he said. “And the generation of wealth does not eliminate poverty because the wealth is not distributed evenly.”

The problem is not limited to developing countries. Langford expressed it starkly when he said “It is more profitable to cut down trees than to preserve biodiversity.” And Robin Marles, Director of Research in the Natural Health Products Directorate of Health Canada, stated that Canada cuts its forests at the same rate as Brazil, warning that such large scale harvesting may not be sustainable in the long run.

Role of Indigenous peoples

If everyone has a role to play in conserving these resources, Indigenous peoples are often the *de facto* custodians of much of the world’s biodiversity. Unfortunately, says McNeely, “Conservation is not always the friend of Indigenous peoples. We need a set of incentives to help Indigenous peoples, to ensure that they receive an equitable share of the benefits, and to recognize Indigenous lands as protected areas,” he said.

In Canada, approximately 80% of Aboriginal communities are located within the nation’s boreal or temperate forests, said Marles. They should be the ones to benefit from the development of medicinal plants from the forests. An ethnobotanical study conducted for Health Canada by native researchers revealed that more than 200 plants, fungi, and lichens were used for various purposes by Indigenous people, he added.

In Panama, ethnobotanical studies among various Indigenous groups showed that they use a wide variety of plants, often for different purposes, said Pablo Solis, of the University of Panama’s School of Pharmacy. And although Panama, with more than 10 000 plant species, is one of the richest countries in the world in terms of biodiversity, most families also grow some medicinal plants themselves. They purchase others from traditional healers. (See related article: Medicinal Plant Potential and Profits in Latin America)

The Emberá are one of several Indigenous peoples who live a traditional lifestyle in Panama’s Darién National Park. Catherine Potvin, of McGill University in Montreal, has been studying the conservation and use of medicinal plants and traditional knowledge among the Emberá with IDRC support. Potvin, who first worked with the Emberá in 1994, said the project aims to study medicinal plants, promote the spread of knowledge about these plants, and examine questions around intellectual property rights. According to Potvin, the survival of both the knowledge of traditional medicine and plants used boils down to two things: economics and trust.

A plan of action

In the final session of the symposium delegates reviewed the lessons learned from three days of discussion and debate, with a view to preparing a set of recommendations. Participants stressed the need for governments to formally recognize the role of traditional medicine and medicinal plants in providing health care, and their contribution to economic development both in developing and developed countries. They called for appropriate policy and legal frameworks in order to strengthen local health systems, for collaboration between traditional healers and medical doctors, and for integration of local health systems into the national health care sector.
The need for sustainable management and conservation of medicinal biodiversity and natural ecosystems was stressed, as was recognition of the rights of Indigenous people and traditional healers, and the equitable sharing of benefits. Partnerships among all stakeholders were seen as key to undertaking relevant policy, research, and development initiatives aimed at achieving improved local health care and livelihoods, and at sustainably meeting the global demand for natural health products.

Delegates also highlighted the importance of donor community support for research to validate traditional medicine through safety and efficacy evaluation, and to develop phytomedicines and food supplements to meet local health and nutritional needs. They also called for more South-South and North-South collaboration. The recommendations from the final session are now being finalized and will be published later this year.

A lasting impact

Summing up the three-day event, Francois Gasengayire, an IDRC specialist in biodiversity and medicinal plants, drew two key conclusions: “First, biodiversity and traditional health care are inseparable for the majority of people in developing countries. And second, biodiversity and cultural diversity are two intrinsically linked and fundamental resources of sustainable development.”

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Sidebar

A Cure by Any Other Name

Anyone new to the field could easily be confused by the number of different terms used to describe essentially the same thing at the International Symposium on Biodiversity and Health. Probably the most widely used term is “traditional medicine” although some participants talked of “traditional systems of healing” in an attempt to broaden the term to encompass a wide range of cultural practices as well as herbal or other remedies.
Some delegates spoke of “alternative medicine.” However, Valerie Assinewe, of McGill University’s Faculty of Agricultural and Environmental Sciences, objected. “Traditional medicine is a complement to conventional medicine, not an alternative,” she told the gathering. Hence another term — “complementary medicine.” There were also a few references to “folk medicine,” generally referring to home-made remedies and cures for minor ailments.

Further muddying the medicinal terminology, the official program of the Symposium refers to “traditional healers and their knowledge of natural medicines,” while the much-quoted Convention on Biological Diversity talks of “traditional knowledge.” “Natural medicines” also appeared in a number of presentations, although Health Canada refers to them as “natural health products.” This term, according to Philip Waddington, Director General of the Natural Health Products Directorate, covers “a wide variety of non-prescription materials, including plants, their extracts and isolates, vitamins, amino acids, synthetic duplicates, probiotics, and homeopathic medicines.”

Finally, several presenters talked of “phytomedicines.” These were the pharmacologists, who use the term to describe their research into plant-based medicine. The prefix “phyto” comes from the Greek word phyton, meaning plant.