

Medicinal Plants and Modern Research

Traditional medicine is known to and used by millions of Mexicans, and its usage continues outside the scope of modern medicine. Besides being inexpensive and effective, traditional medicine has the added advantage of treating the patient in his social and cultural environment. This is why scientists—including doctors at the Mexican Social Security Institute (IMSS) and at several universities—are promoting the use of herbs to cure disease. *Voices* reporter Jackie Buswell prepared this article, after having followed up on the subject for several years.

Plants to cure an ailing heart, your nerves, your liver and skin... Remedies to improve your love life... Plants to make you hallucinate or to put you to sleep... Mexico has all of these and more, thanks to a rich vegetation and to the ancient medical practice of some 56 indigenous groups who are believed to have used over 10,000 different plants, as well as minerals and precious stones and animals in their medicinal and magical practices.

During their colonization of Mexico the Spaniards were not blind to the knowledge of medical botany possessed by the Aztecs and the Mayans. The Spanish King Philip the Second even sent his personal physician, Francisco Hernández, to study the medical practices of the indigenous peoples. Hernández arrived in Mexico in 1571 and after six years' travel wrote a manuscript describing more than 3,000 plants and their uses. These volumes have been published by the UNAM.

An earlier work on Mexican herbal medicine was the *Códice Badiano* published in 1552. It was written in Nahuatl and translated into Latin by indigenous doctors, and contains 185 beautiful illustrations and an explanatory text mentioning 270 medicinal species.

Moctezuma Xocoyotzin, last King of the Aztec Empire and ruler of Tenochtitlan from 1503 to 1520, established various botanical gardens including Chapultepec Park, now considered the most important "lung" or green area in Mexico City. An earlier king, Moctezuma Ilhuicamina, set up one of the most important pre-Hispanic gardens with an emphasis on medicinal plants. This was Huaxtépétl—today, Oaxtepec, Morelos, a popular resort area.

Netzahualcoyotl, King of Texcoco who ruled from 1428 to 1472, founded gardens in Cuernavaca and Texcoco, among others. Texcoco is considered to have been the most



Photo by Rafael Bonilla

Medicinal herbs at the Sonora market.

important center for medical-botanical studies in ancient Mexico. Unfortunately it was destroyed during the war between the Spanish invaders and indigenous defenders. In contrast, the garden at Oaxtepec was preserved throughout colonial times and reportedly supplied plants to a hospital in that town up until the middle of the 18th century.

Botanical Gardens in Mexico Today

The most important botanical collection of medicinal plants in Mexico today is found in the National Anthropology Institute in Cuernavaca, Morelos. This garden was started in 1976 by the Chilean anthropologist Bernardo Baytelman, and according to biologist Margarita Avilés, now has 478 plant species, some 300 of which have known medicinal uses. Other plants in the garden are ornamental or are used as food, for making dyes or in construction. In addition to these, there's an interesting collection of orchids and cactus species.

The garden contains imported plants as well as native ones. Plant samples are dried and pressed for exhibit in the Museum of Medicinal Plants housed in "*la casa de la India Bonita*" (the house of the pretty indian woman). It just so happens that the Ethnobotanic Garden in Cuernavaca is located in the House of Maximilian, the Hapsburg Emperor sent by Napoleon III in 1864 to rule Mexico. During his unfortunate reign of only three years Maximilian built a country residence in Acapantzingo, Cuernavaca, and "*la casa de la India Bonita*" was the home he built for one of his mistresses.

Pre-Hispanic King Netzahualcóyotl founded ancient Mexico's most important center for medical- botanical studies at Texcoco.

Today the Anthropology Institute conducts archeological and ethnobotanical research in Acapantzingo. There's a seed collection and a small plant nursery, a library and the museum, and studies are under way in medical anthropology, ethno-botany and ethno-pharmacology.

The Agricultural University of Chapingo, near Texcoco, houses a botanical garden dedicated exclusively to medicinal plants. It was started in

1980 with the aim of collecting and cultivating 3,000 medicinal plants from Mexico and other countries. The garden's founder, Erick Estrada Lugo, head of Ethno-botanic Studies, named it after Maximinio Martínez, one of the most important students of Mexico's medical botany.

The garden was begun on the roof of the Phyto-Tecnia Department in the University, but now has facilities for more than 200 plants of different climatic origins. Many of the species have been collected by students attending Chapingo's course on

medicinal plants, in expeditions to the states of Hidalgo, Guanajuato, Chiapas and Puebla.

Researchers in Chapingo, including Estrada Lugo, have conducted experiments in the propagation of medicinal herbs as well as extensive ethno-botanic studies in rural communities. A plant that has stirred special interest is the toad's herb — *yerba de sapo*—*Eringium heterophyllum*— used to cure gall stones and to prevent the accumulation of fat in the liver.

The National University (UNAM)

A Health Culture

Bernardo Baytelman, Chilean social anthropologist, came to Mexico as a result of the coup in Chile, in 1973.

With the help of the National Institute of Anthropology and History, in 1976 he founded the Acapantzingo Botanic Gardens in Cuernavaca, Morelos, and in the following years, until his death in 1982, he laid the foundations for the study of medical anthropology in that state.

His dedication and enthusiasm soon prompted a small group of collaborators who are still working in this field.

Besides his studies on the anthropology of health, Baytelman became involved in literature and the theatre, worked in educational cinema and radio, was a teacher and a poet, and designed the "Map of myths and legends of Chile", which remained unfinished when he left his country. Baytelman wrote two books during his stay in Mexico; both published by the INAH: "*Etno-botánica en el estado de Morelos*" (Ethno-botany in the State of Morelos), and another that was published posthumously: "*De enfermos y curanderos, medicina tradicional en Morelos*. (1986) (On the Sick and the Medicine Men, Traditional Medicine in Morelos).

The two works are the result of field work which "Beco" —as he was affectionately called by his collaborators and friends— carried out in spite of bad health, with the urge to become acquainted with and recover the traditional medicine of the local medicine men.

The first book is a study of 50 plants from the northern area of the State of Morelos, based on information on the medicine men of the region, as well as literature and historical documents on the traditional use of herbs.

The second contains 19 interviews — from the 60 that he made for his research on the book— with midwives, vendors of medicinal herbs, medicine men, wizards, quacks, spiritual healers and some patients of these traditional doctors.

The book also contains essays by Baytelman himself on the theory and practice of Nahuatl medicine before the Conquest, comments on traditional medicine and "official medicine", and on the magic elements in the health-illness process.

This work has two indexes, one on plants and the other on the illnesses mentioned in the interviews, illnesses such as: "love-problems", "temper fits", "cramps", "sexual problems", "diarrhoea", "influenza", "withcraft", "cold".

Baytelman's work emphasizes the importance that the wizard-medicine man has always had in his community, now as well as in prehispanic times. The anthropologist states that traditional medicine is a health culture that is widespread and well-rooted in society, especially among the poorer sections of society, and that continues to cure millions of Mexicans.

Traditional medicine in Mesoamerica, states Baytelman, consists of an infinity of cultures and magic-religious criteria in their way of seeing health and illness: it incorporates concepts of the indigenous community, of the Spaniards (with their Arab influence) and of the black communities that were brought from Africa to this continent.

Another very important aspect emphasized by Baytelman in his study is the increase in psychosomatic illnesses suffered by peasants when they move from the country to the city: this is due to the identity crisis provoked by their apparent acceptance of the values and norms imposed by technology, which contradict the magic-religious concepts that the peasant has of life and the cosmos.

The posthumous publication of *De enfermos y curanderos* was prepared by specialists who worked in collaboration with Baytelman in his investigation, in conjunction with his widow, the writer Eliana Albala.

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also has an important botanical garden, divided into indoor and outdoor sections. The outdoor section boasts an important display of the rocky volcanic area's native vegetation. Some biologists working with medicinal plants in UNAM's Garden are Edelmira Linares, Miguel Angel Martínez and Robert Bye.

Traditional Medicine

Mexico has a long tradition of healers who conscientiously apply their knowledge and use medicinal herbs. They also make ample use of magical, religious and superstitious concepts. In traditional popular medicine many ideas about health and illness are dealt with in supernatural terms such as "evil eye", "loss of the soul" and "loss of the shadow." A person can become seriously ill because of "terror" or because of a passing "bad air." Both plants and illnesses can be considered in terms of "hot" and "cold", and a hot sickness such as a fever will be treated with a cooling plant such as lemon grass.

Healers use herbs in teas and tinctures, and also in "limpias", a process in which patients are brushed down with aromatic herbs such as geranium, basil, rosemary, rue, mint or branches from the pepper tree, so that the forces causing illness are cleaned away. Other healers give herbal steam baths called *temazcals* while some use magic mushrooms to diagnose and cure disease, as María Sabina used to do in Oaxaca. Spiritists might go into a trance for the same purpose, while other healers will recommend the use of amulets, love potions, incense and candles to cure emotional woes. Herbs in the form of creams and lotions are also used in various kinds of massage, or they can be applied directly to the skin to reduce swelling or soreness.

It is traditional for people to buy their herbs in the market-place Sonora, in central Mexico City, is the best known market for herbs. It's a fascinating place full of penetrating smells and peculiar shapes, sacks full of plants, strange amulets, distorted-looking roots and branches, exotic fruits and flowers.

The customer can consult the herb sellers in Sonora as well as in other markets in the cities and provinces. They'll listen to the complaints and symptoms, deliver a diagnosis and recommend herbal remedies. Thus the corridors of Sonora market are filled with herb-sellers-cum-doctors, clients/patients, as well as the bundles of herbs which spill over from the

stalls, and the boys and men who constantly deliver new supplies of aromatic herbs. Here you can find remedies for arthritis, bronchitis, colitis or gastritis, and women who want to avoid pregnancy will find both contraceptive and abortive herbs. Biologist Edelmira Linares will soon publish a book on the Sonora market and its medicinal herbs.

Modern Research

In 1976, José Luis Díaz of the



Photo by Antonio Ortuño

Healer preparing plants for a *limpia*, or cleansing.

Mexican Institute for the Study of Medicinal Plants (IMEPLAN), published an extraordinary index of 2,237 medicinal species, giving cross references of common and scientific names and the reported medical use. The index contains 2,787 common names, for at times a plant in Mexico will have several indigenous names (given by different linguistic groups) and a Spanish name. For example, *toloache* is known in Spanish as *yerba del diablo* (devil's herb). This is the thorn apple, *Datura stramonium*, a dangerous plant that can cause hallucinations, sleep or even death, but which is used throughout the world to treat asthma. The marigold, *cempasuchil*, is called *flor de muerto* (flower of the dead) in Spanish because in Mexico it is used on the Day of the Dead.

IMEPLAN as such existed between 1975 and 1980, when it became part of the Mexican Social Security Institute (IMSS). Today the Unidad de Medicina Tradicional y Desarrollo de Medicamentos (the Unit for Traditional Medicine and the Development of

Medication), in Xochitepec, Morelos, is dedicated to research in traditional medicine and to the development of herbal medicine. Research in traditional medicine includes:

UNAM has an interesting botanical garden housing an important display of the area's original vegetation.

— The study of ideas used by traditional healers —what is loss of



Photo by Antonio Ortuño

The *limpia*

shadows, what is involved in the act of healing.

— The study of healers; how many exist in the country, their social role, etc. Dr. Xavier Lozoya, director of the Research Unit, says that for every doctor working in the Social Security Institute, there are five traditional healers working in the community.

— The study of the plants used. "We're promoting the use of plants in the same way that traditional medicine has used them for centuries. We aim to demonstrate scientifically that they are pharmacologically active and have no side effects, and to provide new information about their medicinal properties."

According to Dr. Lozoya, the conflict in Mexico between traditional and modern western medicine must be overcome. He believes public health institutions must resolve the

modern world's health problems but they can use the knowledge of traditional healers and herbalists to great advantage. Given Mexico's troubled economic situation, says Dr. Lozoya, the scientific use of medicinal plants is very important. It is increasingly difficult for the country to import manufactured medical products due to the lack of foreign exchange to pay for them, and thus the Research Unit at the IMSS is working to provide specific alternatives to imported pharmaceutical goods.

The IMSS also aims to instruct doctors and health professionals in Mexico's traditional medical practices. Dr. Lozoya says medical students today are trained in modern techniques, but when they receive their degree they are ill-equipped to work effectively in isolated rural communities with little or no health infrastructure.

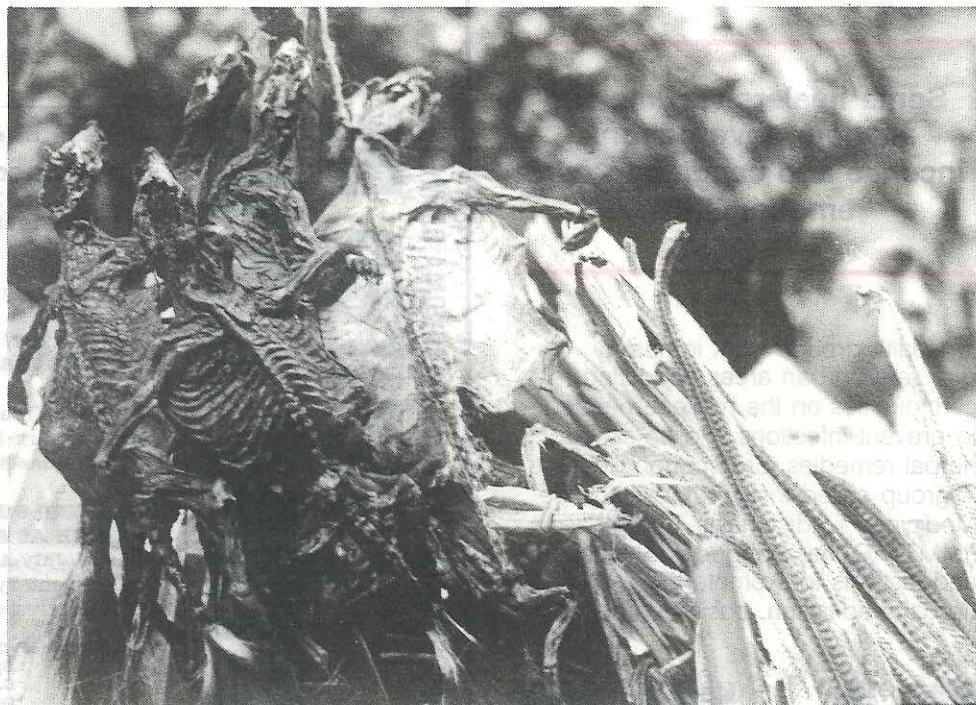
In a slightly different vein, Dr. Lozoya says that since China joined the United Nations 15 years ago, the west has had access to more

information on acupuncture and other traditional medical practices in that country, and on how to combine these practices with modern medical knowledge. Although the popular use of herbs continued in Mexico after the Spanish conquest, these traditional cures have not been incorporated by public health institutions. In the book *Flora medicinal de México* (Mexican Medical Flora), authors Xavier and Mariana Lozoya argue that it is more urgent than ever for Mexico and other Latin American countries to re-assess

The Scientific Use of Teas and Infusions

The Research Unit is studying plants used to treat the primary health problems in Mexico such as gastro-intestinal diseases, respiratory diseases, diabetes, hypertension and cardio-vascular illnesses. The Institute does not aim to study plants in order to extract active ingredients for use in making new pills and tablets. Rather, it studies the herbs as they are generally used—in teas and infusions—in order to recommend their use in curing disease.

The Social Security Institute now officially supports the use of plants for curing certain common ills, thus promoting the use of national, popular and economical remedies. Imported pharmaceutical products to treat amoebas now cost around 50,000 pesos (over \$30), while the cure with *chaparro amargo* costs under \$4.



Plants and animals with medicinal properties.

Photo by Rafael Bonilla

These are some of the herbs presently recommended or being studied by the IMSS Research Unit:

Common name	Scientific name	Use
cuachalalate	Amphipterygium adstringens	antibiotic
chaparro amargo or "bitter one"	Castela tortuosa	anti-amoebic
jacaranda tree	Jacaranda acutifolia	anti-amoebic
zapote blanco	Casimiroa edulis	for high blood pressure and insomnia
flor de manita	Chiranthodendron pentadactylon	heart problems
nopal	Opuntia tuna	diabetes
guayaba	Psidium guajava	diarrhea
gordolobo	Gnaphalium sp.	coughs and colds

their herbal traditions, and to develop them in accordance with modern science to open way for locally-produced medicine.

One positive step towards this goal is that next year the Morelos State University in Cuernavaca will establish a master's program in Chemistry and Pharmacology of Medicinal Plants. The course is designed for chemists and biologists as well as other scientists interested in medical botany. The director of the State University's Medical School, Dr. Montalvo, stated recently in Cuernavaca that modern medicine has always made great use of traditional herbal knowledge. Proof of this is that 60% of modern prescriptions, he said, contain vegetable compounds. Furthermore, Dr. Montalvo praised traditional medicine for the way in which it sees and treats the patient in his or her social environment, while modern treatment tends to remove the patients from his or her social and emotional environment.

Photo by Rafael Bonilla

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Independent Groups

Meanwhile, independent health groups in cities and rural areas, are promoting and strengthening the popular use of medicinal plants. One such group, for example, visited areas in Mexico City that were hard hit by the 1985 earthquake. They advised residents on hygiene and promoted the use of herbal teas to calm nerves and relieve headaches and other symptoms brought on by the prevailing tension, dust and depression.

Some healers recommend amulets, love potions, incense and candles to cure emotional ills.

Health groups work in heavily populated urban areas educating communities on the hygiene needed to prevent infections and on simple herbal remedies for common illnesses. A group called Instituto Mexicano de Medicinas Tradicionales Tlahuilli (IMMTTAC) has conducted workshops and festivals to promote the use of herbal medication, basic homeopathic



Photo by Rafael Bonilla

Plants to cure all ills.

remedies and other so-called alternative therapies. The group has also researched basic health problems in specific communities in several states, including Morelos, Jalisco and Puebla.

IMMTTAC aims to establish community-level health committees that would help extend health services and organize lobby groups to press for running water and drainage in

towns that lack these services. These groups would also promote discussion of health problems in the workplace. Along with other grassroots organizations interested in herbal remedies, IMMTTAC is promoting community orchards and herb gardens to improve the people's diet and to provide readily available medication.

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