University of Texas at El Paso

Cooperative Pharmacy Program
Medicinal Plants and Herbal Products

Their Presence and Importance In Ciudad Juarez and El Paso

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We would like to thank Ms Sarah Schoofield, of the *Mexico Desconocido* magazine, Mexico City, for her kind permission to include drawings, maps and photographs of medicinal plants from Mexico. Other photos/illustrations appeared in Arqueologia Mexicana magazine, Vol. 7, number 39, 2000.
Important aspects

- Products available
- What they contain
- How they are used
- Origin
- Efficacy (does it really work?)
- Safety (toxicity / interactions?)
Medicinal plants

- Mexico and the U. S. share a very extensive common border
- From Calexico to Brownsville, many herbal products are employed
- The El Paso / Cd. Juarez area is one of the most important and populated international borders in North America
Mexico and the U.S. share an extensive common border

Photo courtesy of Mexico Desconocido Magazine
Medicinal plants

- Every day thousands of people cross the border
- Some introduce medicinal or culinary plants into the U.S.
- Our knowledge of some of those plant species is very limited
Medicinal Plants

- Mexico has an ancestral tradition of herbal healing practices

- It also has the world’s third largest medicinal herbal repertoire, after China and India, respectively
Herbal Repertoire by Country

- China: Approximately 12,000 species
- India: Approximately 9,000 species
- Mexico: From 3,000 – 5,000 species
Collecting indigenous healing herbs
Drawing in Medicinal Plant Codex
Burning of “heretical” books was common
Elaboration of a codex – XVI century
Plant names in Latin and Nahuatl
Some plants included in the codex are still used today
Medicinal Plants

- Approximately 3,000 species of plants are used medicinally in Mexico by 62 different ethnicities

- Some 300 are commonly used

- Only 30 have been studied in depth
The codex was written in Latin and Nahuatl
Healing as a spiritual art

Photo courtesy of Mexico Desconocido Magazine
Healing rituals are rich in symbolism

Photo courtesy of Mexico Desconocido Magazine
Medicinal Plants

- Mexico owes its great biodiversity to its diverse climatic regions and mountainous terrain.

- Some plants used in border cities come from far away places, like Central Mexico or the tropics.
Diverse climatic and physiographic regions

Map courtesy of Mexico Desconocido Magazine
Medicinal Plants

- Aside from language and certain customs, medicinal plants are part of the border culture.

- Some herbs are continually introduced in varying amounts.
Medicinal Plants

- Are traditionally used by Mexican and Mexican American populations

- Some plants are equally popular on both sides of the border

- Healing practices can be similar
CURANDERA - HEALER

Photo courtesy of Mexico Desconocido Magazine
Traditional way of drying herbs

Photo courtesy of Mexico Desconocido Magazine
Modern herbal presentations
Aztec marketplace

Photo courtesy of Mexico Desconocido Magazine
Medicinal Plants

- Some species have been used for centuries (Chamomile, Damiana) in both Juarez and El Paso
- Many are not native to this region
- Others have been incorporated fairly recently (Ginkgo, St. John’s Wort, Echinacea, Uña de Gato, Kava)
Photo courtesy of Mexico Desconocido Magazine

CHAMOMILE
St. John’s Wort
Echinacea
Ginkgo
Cat’ claw

Uncaria guianensis

Photo: Raintree Nutrition, Austin, Texas
Kava
Medicinal Plants

- The use of medicinal plants and other alternative therapies is intertwined with religious beliefs.

- At times, Christian rites are combined with pagan rituals.
Plants have a mystical significance

Photo courtesy of Mexico Desconocido Magazine
Peyote is employed in religious ceremonies

Photo courtesy of Mexico Desconocido Magazine
Peyote and Huichol culture

Photo from Plants of the Gods by R. Schultes and A. Hoffman
Medicinal Plants

- Some alternative therapies involve healing practices from many countries, such as:
  - India (Ayurvedic and Unani)
  - China and Tibet
  - Japan (Kampo) *i.e.* mushrooms
  - Mexico
Sonora market – Mexico City

Photo: Mexico Desconocido Magazine
Medicine Man from Durango
Medicinal Plant Use

- Employed by all age groups (babies to the elderly)
- Usually the crude drug (tea) is cheaper than regular medication
- Reputed to have fewer side effects
- Considered natural and thereby safe (many exceptions exist)
Medicinal Plants

- Very important in domestic and international trade (globalization)
- Herb products and supplements are a lucrative activity
- “Back to Nature” trend is *in vogue* worldwide
- Much misinformation exists
We must select factual information
Medicinal Plants

- Chinese herbs are gaining foothold
- Complex herbal mixtures are a common feature of CTM
- Many plants from India are now becoming popular (Ashwagandha)
- Factual information is scarce
Herb combinations are common
Medicinal Plants

- Many of these plants have not been studied adequately

- Some may indeed have important medicinal application

- Their interactions with drugs are poorly understood (unknown)
Medicinal Plants

- Some herbal companies are *obscure* in their operations
- Their origin is difficult to trace
- Herb quality is often undependable
- Their technical knowledge may be obsolete or incomplete
Medicinal Plants

- Medicinal Plants are Crude Drugs

- Great variability can exist in their therapeutic or active principles

- Depending on their place of origin and variety (soil type, climate, etc.)
Medicinal Plants

- Standardization of crude drugs is virtually impossible
- Transportation, storage and handling all affect quality in some way
- Some are stored under unsanitary conditions (health hazard)
Medicinal Plants

- Quality and reliability rely strictly on the supplier and distributor

- Adulteration and mislabeling are not uncommon with some herbal products in many countries
Medicinal Plants

- Few qualified professionals exist
- Labels may contain erroneous information, mistaking species
- Common names of plants vary from region to region, creating confusion
Incorrect classification

Photo: Tecnobotanica Azteca, Mexico
Medicinal Plants

- Employing plants only by common name can be risky (toxicity ?)
- The plant has to be examined carefully (microscope)
- Most plants are sold in bits and pieces, making I.D. difficult
Crude drugs have variable quality
Mislabeling
Photo: Mexico Desconocido Magazine

Incorrect classification
Medicinal Plants

- Both in the U.S. and Mexico, clerks with no botanical experience may dispense the herbal drugs.

- Some mainly rely on catalogues that state commercial information with little or no technical backup.
Medicinal Plants

- Ginseng, Cat’s Claw, Echinacea and others may be adulterated with inferior quality plants.

- In some cases, neither the consumer nor the provider are fully aware of this.
Crude drugs are of variable quality
Medicinal Plants

- Because of lack of reliability, some consumers and physicians are wary of herbal products

- Variability in quality explains variability in efficacy
Medicinal Plants

- Sometimes, adulterations can cause serious health problems
- The proposed plant may not be to blame (incorrect classification)
- Other plants, *fillers*, drugs (cortisone), rodent feces, bacteria, insects, can be the real culprits
Aristolochia spp
Sidewalk marketplace

Photo Courtesy of Mexico Desconocido Magazine
Hierberia or herbal store in Mexico

Photo courtesy of Mexico Desconocido Magazine
Medicinal Plants

- Some companies, especially in Western Europe, are very strict in terms of quality (standardization).

- The U.S. and Mexico are following the same trend, but much remains to be seen in terms of seriousness.
A Time For New Paradigms

Science must evaluate empirical herbalism
Fact versus fiction

- More funds should be allocated to research medicinal plants
- Most of the world’s flora has not been studied adequately
- “Paraherbalism” denotes misinformation about herbs
- It should be replaced by fact
Phytotherapy

- Complementary more than “alternative”
- Scientific basis vs. “paraherbalism”
- Included in medical studies at some universities in Europe
- It should be included in medical and nursing curricula in the U. S.
Phytotherapy

- 40% of prescriptions in Germany are based on herbal products

- Commission E Monographs

- Retains factual information and discards the rest
European Phytotherapy

Modern laboratory in Spain

Photo: Soria Natural, Spain.
Quality Control

Photo: Soria Natural, Spain.
Standardized Products

Photo: Soria Natural, Spain.
Pseudo-Standardization

- Active principles not mentioned
- Label specifies only a certain % of leaf, flower, root (limited value)
- Correct dose unknown
Pseudo standardization
Medicinal Plants

- Herb combinations may be incompatible (tannins/ alkaloids)

- Many herbs in one product are not often desirable (exceptions exist)

- They do not always improve efficacy (inadequate information)
Interactions

- Within herbal combinations
- Herb and medication
- Potentiation (grapefruit juice)
- Interference with drug absorption
- Very little is currently known about their pharmacokinetics
Medicinal Plants

- Urgent need to study prospective sources of medicinal agents

- Extinction threatens many plants

- The time element is crucial
Extinction of Medicinal Plants

- Human population expansion
- Overexploitation (commercialism)
- Pollution and climate changes
- Deforestation and livestock grazing
Medicinal Plants Commonly Employed

- Some are part of tradition
- A few have proven efficacy
- Others are new
- Some may interact with medicines
- Others can be toxic
- Always ask patient if he or she is taking herbal products
A Brief Selection of Medicinal Plants Employed In The Cd. - Juarez - El Paso Area
*Aloe vera* - Sabila

- Gel (burns, cuts) used topically
- Latex is laxative
- Treat ulcers
- Against cancer
- Avoid in pregnancy
Boldo

- Gall bladder and liver ailments
- Avoid in pregnancy
- Avoid in small children
- Toxic Essen. oil

Photo courtesy of Mexico Desconocido Magazine
Chamomile or Manzanilla

- Anti-inflammatory
- Spasmolytic
- Infant colic
- May induce labor in concentrated form
- May cause allergic reaction (rare)

Photo courtesy of Mexico Desconocido Magazine
Creosote Bush, Chaparral

- Athlete’s foot
- Cancer (NDGA)
- Kidney stones
- G. bladder stones
- Urinary infections
- Venereal disease

Photo courtesy of Mexico Desconocido Magazine
Creosote Bush

- NDGA, active principle
- Free radical scavenger
- Proven antifungal compounds
Creosote Bush

- Non-concentrated infusion internally
- Concentrated forms not recommended
- Pills and capsules may cause hepatic and renal damage
Creosote bush tablets may be harmful
Codo de Fraile

- Hemorrhoids topically
- Seed is very toxic
- Circulatory problems
- Used for “weight loss” (bitter almond ?)
- Avoid use
Horsetail or Cola de Caballo

- Urinary ailments
- Antiseptic
- Heal abrasions
- High silica content
- Arthritis
- Thiaminase

Photo courtesy of Mexico Desconocido Magazine
Damiana

- Increase libido
- Sterility
- Fatigue (tonic)
- Colds
- Body aches
- Don’t mix w/ alcohol
- Avoid in pregnancy

Photo courtesy of Mexico Desconocido Magazine
Doradilla (Resurrection plant)

- Urinary ailments
- Cystitis
- Kidney stones
- Usually safe
- Avoid in pregnancy
Epazote (Wormseed)

- Anthelminthic
- Condiment (safe)
- Causes uterine motility (avoid in pregnancy and lactation)

Photo courtesy of Mexico Desconocido Magazine
Epazote de zorrillo

- Anthelmintic
- Expectorant
- Coughs
- Stomach and liver ailments
- Toxic, avoid use

Photo courtesy of Mexico Desconocido Magazine
Estafiate (Wormwood)

- Stomachache
- Diarrhea
- Worms
- Rheumatism
- Avoid in pregnancy and lactation

Photo courtesy of Mexico Desconocido Magazine
Gordolobo (Mexican)

- Respiratory problems (asthma)
- Coughs
- Similar properties as Mullein (*Verbascum*)
- Lumbago

Photo courtesy of Mexico Desconocido Magazine
Gordolobo (European Mullein)

- Similar healing properties as Mexican gordolobo
- Belongs to a different plant family
- Often mistaken for the Mexican plant
Hierba del Sapo

- Urinary problems
- Cystitis
- Kidney stones
- Urinary infections
- Efficacy unproven
- Kidney irritation?
- Avoid in pregnancy

Photo courtesy of Mexico Desconocido Magazine
Cactus (Nopal)

- Foodstuff
- Diabetes
- Weight control
- Fiber
- Mucilage
- Unknown active principle (fresh)

Photo courtesy of Mexico Desconocido Magazine
Rue or Ruda

- Menstruation (tea)
- Digestive (tea)
- Rheumatism (topical)
- Earache (topical)
- Abortifacient
- Toxic alkaloids
- Avoid use

Photo courtesy of Mexico Desconocido Magazine
Toloache (Datura)

- Asthma (smoked)
- Rheumatism
- Tropane alkaloids
- Seeds are toxic
- Hallucinogenic
- Magic rituals
- Avoid use

Photo courtesy of Mexico Desconocido Magazine
Valerian root

- Sedative
- Nerves / insomnia
- Capsules or tinctures
- Mixed with other plants (hops, passion flower, etc.)

Photo courtesy of Mexico Desconocido Magazine
Guareque, Wereke

- Root
- Diabetes
- Heal wounds
- Topical antiseptic
- Raw
- Capsules
- Efficacy unknown
- Active principle?

Photo courtesy of Mexico Desconocido Magazine
Zapote Blanco

- Blood pressure
- Hyper or Hypotensive
- Dose
- Sedative
- Seeds are toxic
- Avoid in pregnancy

Photo courtesy of Mexico Desconocido Magazine
Zoapatle (Cihuatlpatli)

- Induces labor
- Contraceptive
- Reduces sperm motility
- Abortion
- May cause harm to newborn

Photo: Plantas de Mexico Al Mundo
Medicinal plants - Conclusion

- Some may be very useful in medicine if properly used
- Thousands of people use them along the U.S. / Mexico border
- Many need to be studied in depth
- The more we know, the better for patient and physician alike
Thank You For Your Attention

Photo courtesy of Mexico Desconocido Magazine