JAFARY’S HERBAL MEDICINE

PRACTICAL GUIDELINES
FOR THE SAFE USE OF HERBS
PREFACE

We have attempted to present a brief, clinically relevant introductory monograph on herbal medicine. There are a large number of encyclopedic reference works available, however to a newcomer, the field of herbal medicine can be quite confusing and intimidating. For example: a well known herbal medicine text describes over fifty medical conditions treated by Bloodroot (Sanquinaria canadensis), these medicinal applications of Bloodroot may have been practiced by Native Americans about two hundred years ago. In apparent contrast, the herb is now limited to use in the toothpaste industry, is considered toxic and deaths from its use have been reported. For the average reader, it is difficult to bridge the gap between theoretical herbal knowledge and practical use.

We have tried to present a synthesis of knowledge of medicinal herbs from the Orient, the Far East, the Amazon, South Africa, the New World and the ancient world. In today’s world, knowledge of one system of medicine is not enough. We have tried to avoid a nostalgic, mythical mumbo-jumbo “cure and heal everything under the sun” approach to describing the use of these herbs.

It has been a rather difficult and painstaking job because, despite great medical advances of today, there is an astonishingly significant lack of interest in herbal medicine from the medical and pharmaceutical industries. Scientific inquiry into the use of herbs is limited. Limitations of our current knowledge compel us to seek the empirical knowledge of established herbalists. In the current context, experience and proper guidance are key to the safe and effective use of herbs.

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January 2008

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- Depression
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- Diuretic
- Eczema
- Fever
- Heartburn
- Herpes
- Hypertension
- Irritable Bowel Syndrome
- Immune Enhancement
- Kidney Stones
- Liver Disease
- Menopause Symptoms
- Metabolic Syndrome X
- Muscle Cramps or Spasms
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- Rheumatoid Arthritis
- Urinary Incontinence
- Urinary Tract Infection
- Weight Loss, Obesity
- Wound Care

Overview of Herb Use:
Methodology of Research

In Herbal Medicine
We have reviewed over five thousand monographs, books, full text articles and abstracts for the preparation of this book. The following computer databases were used: Paperchase, EBSCO, Wilson Web Medline resource of National Library of Medicine. The following libraries were extensively used for reference monographs: University of Virginia at Blacksburg, Marshall University School of Medicine, Charleston division, New York Botanical Garden Library, Library of Congress, Washington. All were extremely helpful in obtaining reference materials.

Keywords used for the computer databases were:

- PHYTOMEDICINE
- HERBS
- TRADITIONAL MEDICINE

Special efforts were made to study several pharmacopoeias of the early 19th and 20th centuries. The senior author has a special interest in Medieval and Eastern medicine, as well as Folk medicine.

We have extensively interviewed several herbalists in the Appalachian region for our project on folk medicine. The most important source has been Mr. "Catfish" Gray, a fifth generation herbalist with extensive experience of folk medicine remedies. His knowledge of early settlers medical practices and
Cherokee Indian Medicine is remarkable. (Ref: *Herbal Practice of “Catfish” Gray, Amjad.*) “Catfish” herbal practice involves thousands of patients over many decades. We had the privilege to review these communications between an herbalist and those seeking herbal advice. This was an extremely helpful, unique source of information for herbal use.

We have used the following botanic resources: US Botanical Garden; National Arboretum, Washington; Asheville Botanical Garden & Arboretum; Botanical Garden of North Carolina, Chapel Hill; Cherokee Botanical Gardens, Cherokee, NC; and the Pharmacy Museum of the University of West Virginia, Morgantown, WV. The senior author also has extensive field work over the last 30 years for his publications of *Wild Flowers of West Virginia*, *Medicinal Plants of Appalachia*, and *Folk Medicine of Appalachia*.

It is important to critically evaluate the enormous herbal literature and its relevance to present-day health care needs. We have divided the reference materials into three categories: Medical Journals, Herbal Material and Botanical Journals, including Ethnobotany and Folk Medicine.

Unfortunately, to the editors of several US Medical Journals which are heavily financed by expensive advertisements from the pharmaceutical industry, herbal medicine is nothing but a snake oil potion promoted by quacks and charlatans. On the other hand, European Medical Journals, such as *Lancet* and the *British Medical Journal*, have a much more balanced point of view regarding medicinal herbs.

It was the authors’ intention to keep this introductory text concise and void of fancy terminology. We have avoided listing herbs that are uncommon or antiquated. We do have certain limitations due to the elementary introductory nature of this publication for that reason.

A detailed account of herbs in several monographs has been published by the senior author. This short communication has Part B, which is a color Atlas of medicinal plants, and Part C, composed of *Art of the Apothecary*, a manual for the use of practicing herbalists. Additional volumes will be published periodically to reflect the current status of ongoing herbal research.
A Paradise Lost:
The History of Herbal Medicine

Herbs have been used as medicine for over 5,000 years in the two earliest civilizations of the Old World, China and India. Along with them in their use of herbal medicine were the Babylonians, the Egyptians, the Assyrians, the Sumerians, and the Greco-Romans. A brief sketch of different systems of Medicine are described herein.

Traditional Chinese Medicine (TCM)
Traditional Chinese medicine is not empiric folk medicine, but based on sound knowledge. TCM consists of four different disciplines:

1. Herbalism
2. Food Cures
3. Acupuncture
4. Manipulative Therapy

The earliest account of Chinese medicine, dating back to 3500 BC, is Shen Nung’s *Materia Medica*, which describes over 300 herbs and their medicinal uses. Nung sampled hundreds of plants to examine their effects; his success is due to thorough and dedicated study, not an act of serendipity or discovery by mere chance.

Chinese herbal medicine developed further with the basic principles of *Yin, Yang* and *Qi* (or *Chi*).

In TCM, the human body is seen as a reflection of the natural world with the body having channels of energy and fluid (the energy called *chi*) similar to the rivers and streams of the mother earth. The kidney is considered the mother of all organs while the liver is the father. Any disorder of these organs leads to illness and diseases.

Acupuncture and herbal medicine are given to unblock these channels of energy (*qi* = *chi*) so that energy can flower freely and bring about health. (These channels can be described as similar to blood vessels, lymph vessels and nerves, which are all over the body.)

Shen Nung, the Father of Chinese Medicine, taught that there are five elements in the human body: water, earth, fire, wood and metal.[1] If there is an imbalance of these, it results in disease. So the natural approach to disease is: if there is inflammation (fire), the treatment is herbs with water characteristics, since water can put out the fire.

Later, Huang Ti (The Yellow Emperor, 2698 – 2598 BC) wrote an important herb book, *Nei Ching Su Wen*, a classic medical book of internal medicine. This book reports the dialogue between the master herbalist and his student, Chi Po. It therefore not only covers medicine, but also exemplifies the Chinese way of life (*Tao* = the way), ethics, and other elements of the culture.

The third important Chinese work on medicinal herbs is that of Li Shih Chen (*Pen Tsao Kang Mu*, 1518 BC) during the Ming Dynasty. It spanned over 52 volumes and was completed in 1578. It consists of a compilation of 1,892 herbs and other prescriptions totaling over eight thousand entries.

[1] (file:///I:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1) He develops his theory of the Five Elements in his book *Pen Tsaoas.*
The concept of yin and yang plays an important role in Chinese herbology.

Yin herb tonics are used to treat those illnesses which suffer from yin deficiency. Herbs with either yin or yang qualities are used to keep the body in balance.

<table>
<thead>
<tr>
<th>YIN Force</th>
<th>YANG Force</th>
</tr>
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<tbody>
<tr>
<td>water</td>
<td>fire</td>
</tr>
<tr>
<td>Female in nature</td>
<td>Male in nature</td>
</tr>
<tr>
<td>Passive, negative, dark, cold</td>
<td>Active, lightness, heat</td>
</tr>
<tr>
<td>Moon, night, earth</td>
<td>Sun, high, heaven</td>
</tr>
<tr>
<td>Moisture, water</td>
<td>Dry</td>
</tr>
<tr>
<td>Stomach, liver, lymph</td>
<td>Kidney</td>
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Ayurvedic Medicine

Ayurvedic is the ancient East Indian system of health care and takes a holistic view of health and disease. The Sanskrit word *ayurvedic* originated over 5,000 years ago and means the science of long life.

The principles of Ayurveda are to promote good health and prevent disease by keeping balance in the mind, body and spirit. It includes particular attention to:

1. Diet
2. Lifestyle change
3. Herbal remedies
This holistic approach is the cornerstone of Ayurvedic medicine, and perhaps of all Oriental and Eastern medicine. It places great emphasis on the prevention of disease.

Note: The origin of Ayurveda is lost in antiquity. Its main textbooks appeared 2500 – 4000 years ago. Charaka Samhita (900 bc) is the first recorded medical text and describes 341 medicinal plants. Later, the Sushrata Samhita (600 bc) placed an emphasis on surgery and contained almost 400 medicinal plants. (It included 57 drugs of animal origin and 64 minerals, among others.) Then in the 7th century ad, Vagbhatta of the Indus Valley (present day Pakistan) described the use of medicinal plants in his work Ashtanga Hridaya. Ayurvedic medicine is very similar to modern day medicine, herbs were described according to their action, such as antipyretic, emetic, diuretic, anti-tussine, febrifuge, analgesic (Charaka Samhita), and were divided into 50 categories.

**Tri Dosha System**

Each person has types of energy (or *body humor*) called:

- **Kapha** bones, muscles
- **Pitta** digestion, metabolism, fire & water
- **Vata** impulse, movement, circulation, heart, breathing

Every person is very unique and has one dominant type of energy. The energies again, are a combination of the five basic elements:

1. water
2. fire
3. earth
4. air
5. space

Ayurveda also includes yoga, meditation and cleansing to get rid of body toxins.
The early texts of Ayurveda are the *Charaka Samhita* and the *Susruta Samhita*. The earliest historical evidence is attributed to Harappa and Mohenjodaro (3000 BC), two ancient cities of the Indus Valley Civilization (located in present day Pakistan, part of ancient India by the Greek historian Herodotus). Ancient writings of the *Rig Vedas* (sacred religious writings of the Hindu religion) contain references to the use of herbal cures (1200 BC).

The Ayurvedic System

1. **Taste**  Ayurvedic medicine merits special importance to the taste of foods and herbs, which have their unique effects.
2. **Pancha Karma**  (Body Cleanser)

Five Modalities of Self Cleansing

- laxative
- enema
- nasal cleanser
3. **Massage Therapy** (Aromatherapy)

For:
- rheumatism
- sleep disorder
- stress relief
- improved circulation
- migraines

The use of essential oils from medicinal plants is highly developed in Ayurvedic and Indus Valley medicine.

**Egyptian Medicine**

The earliest practice of Egyptian medicine can be traced back to *Papyrus Ebers* (1500 bc) which listed a large number of drugs, or medications, such as Colchicum, Wormwood, Aloe, Garlic and Anise. Egyptian medicine was greatly influenced by India, and in return, was later a source of inspiration for Greek medicine. Many important medicinal plants used in ancient medicine originated in India.

**Greco – Roman Medicine**

The word *Europe* is of relatively recent origin. In ancient times, it was basically a rich mediterranean culture which was a precursor to present day Western herbal practices. One of the earliest Greek writers, Theophrastus wrote the *Inquiry of Plants*, which mentions 500 drugs. The most important herbal, however, was written by Dioscorides, a surgeon with Emperor Nero’s army, who wrote *De Materia Medica*. This also became a basis for the Unani Tibb (Greco-Arab Medicine) along with contributions from Galen.

In the history of western writing, the influence of India on Early Egyptian medicine is totally ignored. The proof is very simple, where did all those medicines in the *Papyrus Ebers* come from, most of them did not originate from Egypt but were imported from the Indus Valley.

Pliny, a Roman historian (23 – 79 ad), wrote the monumental work *Historia Naturales*, in which he gives an account of herbs encountered during his extensive travels. This work became an important resource for all subsequent writers of herbals.

Claudius Galen (130 – 199 ad) was born in Pergamon (present-day Turkey). His ideas were used extensively and improved upon by Arab muslims who carried them to Spain, where they were reintroduced to Europe. This form of medicine, called *Unani medicine* (Greek-Arab medicine), is still practiced today in the subcontinent of India and Pakistan.

**Unani Medicine:**
- Hippocratic – Galenic – Arabic
The Greek herbalists Dioscorides and Galen were highly esteemed in the Islamic world.[2] Their works were improved by the addition of other medicinal plants and herbal remedies, especially the *Materia Medica* of Ibn-Baitr, Rhazis, Avicenna and Albucasis. The *Canon of Medicine* by Avicenna was utilized by medieval Europe until the late 16th century. The use of plants with sun therapy for psoriasis and cane sugar for the preparation of syrups revolutionized the practice of herbal medicine. Rhazi and Avicenna perfected the art of distillation of essential oils from aromatic plants which lead to a continually expanding pharmacopoeia. While Dioscorides had 600 plants mentioned in its texts, Ibn Baitr had a compendium of 1300 medicinal plants.

**What Is Unani Tibb?**

**Theory of Body Humors and Temperament**

The Unani Tibb is a system of health practices in India and Pakistan (including Bangladesh). It is a true descendant of Greek – Hippocratic medicine, and based on Hippocrates' and Galen's teachings that a perfect balance of elements, humors and temperaments keep the body healthy. According to the theory of body humors, things in nature consist of *four basic elements*: water, earth, air and fire. These are translated into *four temperaments* of humors in the body, in health, and in disease. Food, diet and medicine also inherit these four intrinsic qualities, *four body humors*, corresponding with the above mentioned temperaments.

[2] (file:///l:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) The word unani is derived from ionian, an old name for Greece.
Medieval Islamic physicians closely followed the Galenic system of pathophysiology of the disease process. The temperament, or *mizaj*, of a person is expressed by the dominance of a particular body humor. Galenic disciples believed that the proper combination and balance of these four elements lead to restoration of health.

So the treatment also depends on the type of food and “inner” qualities of the herb which will best suit each patient’s temperament (personality). For example, a person with phlegmatic temperament will have chronic bronchitis and excessive mucus production causing frequent sinus infection, sore throat, etc. A phlegmatic person should be given herbs which cure those conditions and should avoid food and herbs which cause excessive mucus discharge.

This actually makes more sense than the western formula of one medicine should work for all different types of personalities and people – one shoe size does not fit all feet. Unani respects individual characteristics. These bits of information can be redefined based on modern day concepts, such as in the following examples:

1. **Sanguine (blood)** will tend toward cor pulmonale, sleep apnea, obesity, and congestive heart failure.
2. **Phlegmatic** would tend toward chronic bronchitis, bronchiectasis, and frequent respiratory infections.
3. **Choleric** personality will be someone with hepatobiliary disorders such as bile gastritis and pancreatic problems.
4. **Melancholic** will tend toward diseases of brain neurotransmitters, depression, anxiety, and neurosis.

It is important to bear in mind that body humors do not equate with body fluids transliterally, such as sanguine or simple blood (drawn by venesection), or yellow and black bile as restricted to the fluids in a normal gallbladder content. Urine is a body fluid but is not considered to be a body humor. These designations of humor are quasi-material. An important feature of Unani medicine is the study of pulse, along with the characteristics of urine.

Health is a balance and harmony of these humors. If these humors are out of balance or disturbed, we have sickness and disease. When all four elements are in order, it produces health and well being. While modern medicine has tried to belittle these basic elements of health and disease, this concept or theory, based on anatomical and physiological principles known at the time, is a remarkable product of intellectual achievement.

If we conceptualize the knowledge of Medicine from the Victorian era to the mid-twentieth century, we can redefine the Body Humors as follows:

1. **Endocrine humors** with its hormonal influences, secondary and tertiary intracellular messengers are effective at a cell membrane level.
2. **Inflammatory and allergic humors** with effective cells being different levels cytokines.
3. **Autoimmunity**, malignancy and other related immunological disorders are pathological entities caused by the disturbance of partially understood immune mediated effector humors.
4. **Degenerative and atherosclerotic mechanism** with still yet poorly defined effector humors.

An imbalance of body humors can lead to disease or sickness. Physicians in antiquity were not so far off from this last century’s development of molecular biology and nanomolar chemistry. Even our present day concepts of diseases will appear quite primitive in the near future. Modern day knowledge of physical and biomedical sciences define the very basic fundamental forces of nature. In fact, almost all amino acids utilized in living systems are of L types. The complex machinery of protein synthesis and stereo selectivity of enzymes could have assured that such left handedness was perpetual, however amino acids gets their L or D configuration through mirror arrangements of the atoms contained in the backbone structure. It
has been shown that L or D configuration correlate with left or right chirality.[3] A small change in some drugs or molecules, such as using the mirror image (for example, Thalidomide) can have profound effects on human health.

Atoms such as carbon, nitrogen and oxygen make up bigger biological molecules, which still measure less than 0.4 nanometers. Chemical and physical behaviors of these small molecules, in turn, affect the behaviors of larger macromolecules. So small changes at a molecular level can bring a wide range of effects and phenomenon, including human disease and health. Thus the **Science of Life** may have to be defined by our current knowledge of quarks and subatomic physics. Perhaps, one millennium from now, in a genuine tribute to Aristotle, the greatest universal genius who ever lived, we may return back to the concept of disease – Hot, Cold, and Humid – the very basic elements of the origin of human life on earth.

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**Temperament and the Modern Concept of Physiology**

A physiological concept of temperament is similar to the *milieu interieur*, as defined by Claude Bernard (noted 19th century French physiologist).[4] In 1857 and 1858, Bernard delivered a series of lectures on the "Liquids of the Organism", which was literally a soul and body translation of the very concept of body humors discussed previously. In these lectures (except for the descriptions of blood supply to secretory organs and of the lactogenic hormones in avians and mammals) he discussed no new experimental methods.

Bernard described the concept of *milieu* to explain internal environments such as maintaining the life or organisms against its external environment by air purification and supplying nutrition to the various organs. He defined the term *milieu interieur* by explaining that through respiratory mechanisms blood comes into contact with air and provide oxygen to all organs. Blood then obtains nourishment from the gastrointestinal tract producing combustion and metabolism, with waste excreted in the form of gas through the lungs or urine. Thus blood provides a constant body temperature relative to humidity and availability of oxygen of each of the organs, thus providing every living cell in an organism with a constant balance in regard to temperature and nutrition.

In brief, in modern day terminology *temperament* could be redefined as a composite score of *milieu interieur*, keeping the body in balance such as a constant blood pH and hydrogen ion concentration in conjunction with the complex interplay of various body humors. Any significant disturbances or changes bring disease, illness or death.

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**Jamu Medicine**

Jamu is the ancient Indonesian art of herbal healing. It is very different from the conventional western approach to medicine. In western medicine, for example, medicines are used to kill an infection, but the art of Jamu encourages the body’s natural defenses to produce antibodies. "Cure comes from within."
For example, one Jamu remedy for cancer is:

1. Dried benalu (*Loranthes* species)
2. Tapak dara (Madagascar Periwinkle, *Catharanthus roseus*)

Boil the leaves and drink water. Repeat the process with betel nut leaves.

Examples of Jamu Medicine

One of the best selling Jamu medicines is *Posodolamatee*.

*Bidaralaut* (see tree, *Strychnos ignatii*). Tea made from the root is used as a tonic for fatigue and diarrhea.

*Ujung Atap* (*Baeckia frutescens*) increases menses, is a diuretic, and helps with abdominal pain.

*Pasak bumi* (*Eurycoma longifolia*). The root bark is a
Sugar is an important part of the recipe. Three types of sugar are used:

1. **Gula batu** cane sugar
2. **Gula jawa** coconut sugar, from sap of a coconut tree
3. **Gula avar** palm sugar, called the *queen of sugar*
   made from the Aren tree (*Arenga pinnata*)

**Nutmeg** (*Myristica fragrans*)

Nutmeg is used as a spice in the West, but nutmeg plays an important medicinal role in Jamu medicine.

Examples of its use are:

- Mace (covering of seed) used for headaches
- Bark & leaves aphrodisiac
diarrhea
laxative
gargle

**Kampo Medicine**

This is the traditional Japanese herbal medicine which has been practiced since the year 1500. In Kampo, the body and mind are considered inseparable and herbal formulations for the same medical disease can be very different for different patients (unlike western medicine, one shoe size does not fit all.)

Kampo is a general term used for the unique system of traditional medicine practiced in Japan, which was itself derived from the chinese materia medica. About 170 kinds of drugs are listed in the Kampo traditional medical system.

Kampo has become more popular for its effectiveness in the treatment of certain diseases. Following are some examples:

**Shosaikoto** (*Xiao Chai Hu Tang*) used for:
Common cold
Pleurisy
Pneumonia
Liver disease.

Shosaikoto consists of several herbs, of which the two essential ones are Blupleurum root and Scutellaria root (Baical Skullcap). Modern studies have shown that it is effective in cirrhosis and other liver diseases. A general list of ingredients is as follows:

- Blupleurum root
- Pinellia ternata
- Scutellaria baicalensis
- Ginseng
- Jujube root
- Ginger root

**Daisaikoto (Da Chai Hu Tana)** used for:
- Gall bladder disease, to decrease gallstone formation.
- Hepatitis
- Hypertension
- Diabetes Mellitus
- Insomnia
- Nausea, vomiting

**It contains:**
- Bupleurum root
- Peony root
- Jujube
- Citrus
- Ginger root
- Rhubarb

**Saibokuto (Chai Pu Tana)** useful for bronchitis, asthma, cough, and as an anti-inflammatory. Contains 10 herbal crude components:
- Poria sclerotium
- Magnolia Bark
Drug Interaction

Kampo medicine is usually a combination of several crude drug extracts, many of which interfere with western (allopathic) prescription drugs. For example, Angelica interferes with coumadin, and licorice with prednisone and statins.

Medieval Herbalists

During the Renaissance, several herbals became available. These were based on early Greek and Roman medical works and were definitely influenced by early Arabian writers. Two important medieval herbalists are Mesue, the youngest, and Serpion. They had a great influence on the European herbal practices of the 16th and 17th centuries. In the 16th century, Bavarian Leonhard Fuchs (1501 – 1566) wrote *De Historia Stirpium*, a learned scholarly work with high quality engravings of plants. Later Carl Linnaeus leaned heavily on Fuch’s writings in his monumental classification of the plant kingdom.

Our modern era of herbals begins with the *Great Herball* by Gerard, however it is considered to be the writing of Rembert Dodens, a Flemish physician. Dodens’ first botanical work, *Cruydeboeck* (published in Antwerp, 1554), contained a large number of wood cut illustrations borrowed from Fuchs. An English translation was rendered by Lyte.[5](file:///I:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1) However, nearing the publishing date of the book Lyte passed away. The publisher’s recruited John Gerard, a ship’s surgeon and horticulturist during the reign of Queen Elizabeth I, to finish Lyte’s translation of Dodens and he passed it off as his own work, with a few modifications. In brief, *Gerard’s Herball* is really Rembert Dodens’ work with English dressing.

Other English herbalists include John Parkinson who published *Theatrum Botanicum*, which is virtually an encyclopedic description of over 3,000 plants. Nicholas Culpeper published his herbal in the 17th century, which was similarly popular due to its astrological remarks.

A Journey Back To Eden

In the United States, Samuel Thompson (b. 1769) promoted herb therapies with the combination of Native American skills. Herb medicine became less important after the second world war, though not until recent years has it gained momentum, described by the words of the famous Appalachian herbalist Jethro Kloss, a *Journey Back To Eden*.

Introduction

According to reports by the World Health Organization, an estimated 80% of the world population uses traditional medicine (herbal), which includes those who use it as their primary form of health care.

The use of herbal medicine from natural products has increased in recent years. There are perhaps 35 – 70,000 species of plants which are being
used around the world today for medicinal preparations, but there are less than 5,000 over-the-counter preparations available. Lack of enthusiasm and interest from the pharmaceutical industry of the West stems from not being able to obtain exclusive patents on plant products. Due to this significant lack of interest, only a small number of these herbs have been studied with modern technical and research tools in attempts to determine their active ingredients, levels of efficacy and safety.

In the United States, almost 30% of the population uses an alternate health care system, which includes herbal medicine. In Europe however, over 60% of the population and 75% in Britain favor complementing their national health care system with the use of herbal medicine.

Herbal remedies are economically priced because they cannot be patented. Therefore, western businesses and pharmaceutical companies have no incentive to develop them further to be used in convenient forms.

Many of the old remedies have become more valid in light of modern scientific research, for example, Horse Radish, which contains large quantities of vitamin C and is effective in getting rid of kidney stones. Marsh Mallow helps and has a soothing effect on upper respiratory passages. Frankincence and Myrrh, when boiled together, act like carbolic acid, which may explain their various antiseptic uses in ancient medicine. Use of Feverfew's effectiveness for migraine headaches could be due to how it increases levels of melatonin. St. John's Wort was used in medieval Europe to treat people who presumably had the devil in their heads, those who suffered from paranoia, schizophrenia and depression. It worked then and it works now, with a mode of action similar to Prozac. In India, Reserpine was used for hypertensive encephalopathies and maniac psychoses for centuries. It is perhaps still the safest medicine for that purpose despite all the shenanigans of the modern pharmaceutical industry. This remains the recurrent theme and story of many other herbal remedies found throughout the world.

Our Purpose For This Book

1. To present a brief account of important medicinal herbs which have a known significant historical record regarding their safe use and known side effects.
2. To describe relevant clinical uses of herbs and their indications, based on the presence of bioactive ingredients in medicinal plants. For example, if a medicinal plant contains high levels of tannins, it has an astringent effect, and can therefore be used to treat diarrhea, colitis and wounds.
3. To establish at least minimum standards for the use of herbs in clinical medicine. These standards of care will address the following:
   1. What are the indications for the use of herbs
   2. Modern and current use, based on knowledge of bioactive materials
   3. Limits on the duration of therapy and dosage
   4. Drug – plant interactions, herbs interfering with other allopathic medicines and their uses.
4. To introduce briefly several different systems of natural medicine and herbology as practiced around the world.
5. To explain how to select herbs and prepare them for effective use.

To explain elementary methods of mixing different herbs, such as combining Chinese, Ayurvedic and Galenic ideas.

The following list includes the essential principles of Herbalogy.

1. The most important principle is knowledge. Solid botanic knowledge and identification in the field and having reliable resources are important.

2. **Proper indications**: What is the proper diagnosis? – self diagnosis may lead to error in judgment and taking medicines which are not indicated.

3. **Proper dosage, frequency of dose and length of treatment**. This is equally important for the purpose of avoiding toxic side effects.

4. **Knowledge of side effects and interactions with other drugs** (blood thinners, sedatives, sleeping pills, chemotherapy, and practically any other prescribed treatment.)

5. **Herbs are medicinal and can be powerfully effective in experienced hands** (biological response modifiers).

This introductory manual and elementary book on herbs can be a great help for those with basic knowledge and skills in medicine (or medically related professions). For the general reader, this can be an informative guide useful for study or reference. For the experienced user, it can be equally rewarding as a friendly source of medical therapy.
In Europe, the *Thalidomide disaster* raised questions about the dark side of modern medicine. This was the beginning of alternative medicine in Europe. In the USA, the use of estrogen and the anti-arthritis pills Celebrex and Vioxx have made public aware of the side effects (a double-edged sword) of modern medicine and have instigated a push toward seeking alternative therapies.
1950  Unorthodox medicine
       ➔  Quackery
       ➔  Witchdoctoring
       ➔  FRINGE MEDICINE

1970  Alternative Medicine

1980  Complementary Medicine

---

1990 - 2000  Integrative Medicine

A form of treatment not widely used by orthodox healthcare professionals.*
The Resurgence of Herbal Medicine

Often, a question is raised as to why there is such a recent upsurge and interest in the use of herbs. Frankly, it is due to the failure of modern allopathic medicine in treating many illnesses such as arthritis, flu, viral diseases, Parkinson’s Disease, and Alzheimer’s Disease, coupled with the skyrocketing cost of health care. There is an emerging awareness of alternate health care, including herbal remedies. There is also increasing interest in the cost-benefit ratio and its social cultural impact on Public Health Policy.

Herbal Treatments Commonly Sought

Based on interviews with hundreds of patients and many herbalists, the following is a list of ailments and conditions for which people commonly seek
herbal treatments.

1. Menopausal symptoms
2. Arthritis
3. Obesity
4. Menstrual disorders
5. Decreased libido
6. Diabetes / hypertension
7. Anti-aging, tonic
8. Fibromyalgia & Chronic Fatigue Syndrome
9. Cancer
10. AIDS

**Popular Herbal Medicines in Europe**

The following is a list of popular herbal remedies in Europe and what they are used for:

- Garlic for hypertension
- *Gingko biloba* for dementia, Alzheimer's Disease
- Saw Palmetto as a diuretic and for enlarged prostate
- Milk Thistle for liver disease, hepatitis
- Grape seeds as anti-oxidant
- Bilberry

**Popular Herbal Medicines**

**In the United States**

The following is a list of herbs that are currently popular in the United States:
# World's Most Important Herbs

Following is the authors' list of the world's most important and most useful herbs.

<table>
<thead>
<tr>
<th>Popular Herbs in the United States</th>
</tr>
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<tbody>
<tr>
<td>Echinacea</td>
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<td>Garlic</td>
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<td>Ginseng</td>
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<tr>
<td>Gingko</td>
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<td>Goldenseal</td>
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<td>St. John’s Wort</td>
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<tr>
<td>Black Cohosh</td>
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<tr>
<td>Hawthorne Berries</td>
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<td>Ephedra</td>
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<td>Sassafras</td>
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<td>Comfrey</td>
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<td>Slippery Elm</td>
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<td>Lemon Balm</td>
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<td>Catnip</td>
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<td>Ginger</td>
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<td>Valerian</td>
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<td>Milk Thistle</td>
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<td>Angelica</td>
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<td>Maca</td>
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<tr>
<td>Cranberry</td>
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<tr>
<td>Horse Chestnut</td>
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</tbody>
</table>
Herbal treatments have repeatedly yielded effective results in the following conditions:

1. Post menopausal symptoms
2. Arthritis
3. Fibromyalgia / Chronic Fatigue Syndrome
3. Fibromyalgia / Chronic Fatigue Syndrome
4. Diabetes Mellitus (especially in early stages)
5. Hypertension
6. Indigestion, Diabetic Gastroparesis
7. Peptic Ulcer
8. Viral syndromes, Flu
9. Infection in upper respiratory tract, sinusitis
10. Urinary tract infection
11. Skin diseases, mouth ulcer
12. Yeast infections
13. Palliative care of cancer
14. Migraines
15. High cholesterol
16. Heart disease
17. Allergies
18. Sexual dysfunction
When To Seek Medical or Professional Help

With certain symptoms, it is advised to seek help from your doctor or other medical health professional. These symptoms include, but are not limited to the following:

- Persistent headache
- Severe abdominal pain
- Severe chest pain
Safety of Herbal Medicine

Clinical trials are done to confirm the safe use of any new drug or herb. Many herbal compounds have been used for centuries in some countries, such as in the Indian subcontinent and China. Current use of herbs in these places is the result of the process of elimination combined with knowledge, history and use gained folk medicine and other traditional medical systems (Ayurvedic, Unani, TCM or Traditional Chinese Medicine, etc.) In general, the following studies and methodologies are used.

- Blood in urine, stool or sputum
- Persistent diarrhea
- Persistent cough or sore throat
- Recurrent urinary tract infections
- Unexplained weight loss

Self diagnosis and then self treatment can be dangerous.
Generally Acceptable Use in Humans

Traditional Health Systems With Written Records: Ayurvedic, TCM

Phase I: Study

Phase II: Efficiency and Safety

Phase III: Determining Dose, Toxicity
**Herb Safety**  Are there clinical biomarkers for efficacy and safety in the study of herbal medicine?

**Dosage**

Empirical dosing  
Traditional Medical System  
Gender, age, body habitus  
Wealth  
Season  
Other factors

**Pharmacokinetics**

This is the study of how drugs (or herbs) are absorbed, how they are further distributed in the blood stream, the role of the liver in metabolism and the role of the kidneys in excretion of the products.

**Toxic Chemicals** include Methyl eugenol, Estragole, Aristolochia, and PA’s.
Toxic Side Effects of Herbs

Toxic or negative side effects of herbs can be divided into two categories:

**EXTRINSIC FACTORS**
1. Misidentification of plant in use
2. Contamination
3. Incorrect preparation or labeling

**INTRINSIC FACTORS**

Type A – predictable toxicity which is dose dependent

Type B – unpredictable, idiosyncratic allergic reaction as anaphylactic

The substitution of herbs by mistake is not uncommon. A recent case in point is the development of severe acute renal failure in the use of a Belgian slimming herbal treatment (*Aristolochia farchi* was substituted for *Stephania tetrandra*, resulting in kidney damage requiring dialysis).

**Herb Toxicity** can be due to adulteration, to error in identification, to a lack of quality control during collection of raw materials, or to an error in substitution. The main causes of herb toxicity can be summed up as follows:

1. **Lack of quality control in collection of raw materials.** The mis-identification of similar herbs can cause serious side effects. For example, for one slimming agent, because of a manufacturing error, *Stephania tetrandra* was replaced by *Aristolochia fangchi*, causing serious kidney disease.
2. Contents of active medicinal compounds vary in root, leaves, and stalk, and during collection times. There can be variability in medicinal content from batch to batch.

3. Using excessive amounts, more than normally tolerated.

Continued.

1. Concurrent use of prescription drugs with interference of body organs.
2. Improper mixture of herbal compounds.
3.

1.

Pt. 1: Precautions Using Herbs

ABORTIFACIENT

Herbal teas such as Penny Royal and Devil’s Claw, are known to have been drunk surreptitiously as abortifacients. Slippery Elm and Ginger have also been used for this purpose in early pregnancy, as is any herb listed for its effects as an emenagogue.

ANTI-CHOLENERGIC POISONING

The side effects reported in contaminated ginseng preparation are related to several scopolamine containing plants. Many anti-cholenergic effects, such as blurred vision, dilated pupils and dry mouth, are due to the atropine-like drug activity in the herbs. This is especially seen in Burdock root tea. Other herbs which may have this atropine-like activity are Catnip, Juniper, Lobelia, Jimson Weed and Worm Weed.

CONTAMINATION

Herbs contaminated with lead compounds, cadmium, mercury, arsenic and thallium, can lead to serious side effects. The sea weed Kelp (common in weight loss formulas) contains iodine which can lead to hyperthyroidism.

CYANOGENTIC GLYCOSIDES

Many herbs and plants have an ingredient containing a cyanide-like substance. Examples are: Bitter Almonds (8%), Apricot kernel, and Chokeberry.

ELECTROLYTE IMBALANCE

When ingested, Licorice root can cause hypertension and effects similar that of excessive steroids. Presently in the United States, licorice candy is actually made from a similar tasting plant, Anise, or with artificial flavoring, so these side effects are not seen.
EXCESSIVE CNS (Central Nervous System) STIMULATION

Indian Tobacco, a brain stimulant, can cause CNS stimulation due to its nicotine-like effects. Another example is Ephedra, which can have serious side effects if taken in excess. Chinese and Indian herbalists do not use it for weight loss or obesity. Misuse of herbs leads to unnecessary restrictions affecting their legitimate use.

1. HALLUCINOGENIC AGENTS
   A large number of herbs, such as Nutmeg for example, can cause hallucinogenic effects.

   HERBAL DIURETICS

   Many herbal preparations, such as those containing Juniper berries, have diuretic effects. Shave Grass has the side effect of gastritis. Horsetail preparations contain thiaminase which causes thiamine deficiency. Herbal diuretics are the most common secret ingredients used as slimming agents, especially at fancy health spas.

   HERBAL ECSTASY AND ULTIMATE XPHORIA

   These herbal preparations are available over the counter for cosmic consciousness, inner vision and improved sexual sensation. Ephedrine is the key ingredient in Ultimate Xphoria. Combined with caffeine, it is used for weight loss and as an energy booster, with over 200 million pills sold. These herbal products have been common legal drugs among truck drivers, dieters, night club kids and athletes. Excessive use has lead to seizures, convulsions and even death. Other popular combinations are also available as OTC cold remedies, along with pseudoephedrine and phenylpropanolamine. Illicit use of these drugs in sports training formulas is due to their hypertensive effects during stressful work outs and physical activities, however these drugs can lead to heart attack and stroke. This is a field day for those who do not want to see herbal medicine available.

   PHOTODERMATITIS

   Photodermic allergic reactions (light exposure causing sunburn like effects on the skin) can occur with Chamomile. Skin allergies and delayed hypersensitivity can be due to St. John’s Wort, Goldenseal or Marigold, though this is rare when used at levels of clinical dosage.

Pt. 2: Herbs with Detrimental or Toxic Side Effects

2. CASSAVA: Use of Cassava can cause goiter; cases of ataxic neuropathy have been reported.

3. COMFREY: Roots and leaves contain PA’s (Pyrrolizidine alkaloids) which are known to cause liver damage. Comfrey is banned in Canada and restricted in Europe. It has been dropped as an ingredient in herbal teas. Unfortunately, it is still being promoted in many nutritional health journals. It is also possible that a lower toxicity level reported in European studies is due to a lower alkaloid content in some Comfrey varieties.

4. CHAPARRAL: This evergreen desert plant is used as a panacea for arthritis, cancer and anti-aging in the American southwest. However, it can
cause severe liver damage and is not recommended.

5. **COLT’S FOOT (T. farfara)**: Colt’s Foot has been a popular remedy for cough and respiratory infections in Europe, Canada and the United States since ancient times. While it is now banned in Canada due to possible carcinogenic effects, it is still commonly used in Europe.

6. **GERMANDER**: This is a common ingredient in herbal teas and diet pills. A French medical study has shown it to cause liver toxicity. *Germander should be avoided.*

7. **LOBELIA (L. inflata)**: Often used as a tobacco substitute and folk remedy for asthma, Lobelia was approved by the FDA in the past as a smoking deterrent, however it can depress breathing and cause palpitations. Lobelia can also cause seizures, convulsions and severe vomiting.

8. **MISTLETOE**: This contains phytotoxin which has a similarity to the cardotoxin of cobra venom, causing severe skeletal muscle contractions.

9. **PENNYROYAL**: Extract of Pennyroyal can cause liver damage, coma and convulsions. Native Americans have used it for certain menstrual disorders. Also used to induce abortions, it occasionally has serious and even life-threatening side effects.

10. **POKEWEED**: Eating berries can cause toxicity with severe gastrointestinal irritation and respiratory depression. Use of 2-4 dried berries has been prescribed by Appalachian herbalists.

11. **SASSAFRAS TEA**: Once greatly popular as an herbal tea and tonic stimulant, it is still widely used in folk medicine as a remedy for rheumatism. It is known to contain sasafarole, a known carcinogenic. Oil of Sassafras was used in the past as a flavoring agent in root beer, but was banned by the FDA in 1970. It is still however, currently used in herbal teas and is constantly promoted as a tonic in herbal literature.

12. **YOHIMBE (Pausinystalia johimbe)**: Often taken for male impotence, Yohimbe can cause a severe hypertensive crisis and anxiety reactions along with bronchospasms.

**Pt. 3: Adverse Effects of Herbs**

Herbs in the following list, while commonly used, also exemplify certain toxicities.

**Toxic Herbs**

**DIGOXIN-LIKE DRUGS** contain herbs such as:
- Oleander
- Adonis
- Indian Hemp
- Lily of the Valley
- Hellebore

These produce toxicity similar to an overdose of digitalis (Foxglove). St. John’s Wort also interacts with the chemotherapy drug Digoxin.

**DONG QUAI Angelica sinensis.**
- May increase menstrual symptoms
- May induce early menopause
- Anti-arrythmic (Quinidine-like effect)
- Anti-thrombolic (contains coumarins and ferulic acid)
- May interfere with blood thinners, such as coumadin.
- Anti-asthmatic
- Anagelsic

**GARLIC** Increases bleeding tendency.

**GINGER** *Zingerber officinalis*. No adverse effects or drug interactions are known.

**GINKGO** *Ginkgo biloba*.

- Improves blood flow to brain in stroke patients.
- Improves pain-free walking in patients with blocked leg arteries.
- Antioxidant
- Increases bleeding tendency due to its effect against platelets.

**GINSENG** It is used for:

- Angina pectoris
- Congestive heart failure
- Diabetes
- Antioxidant

Dose is 100-400 mg of extract, or 1-2 grams of root. Possible interference with coumadin and Digoxin.

**HAWTHORNE** *Crataegus* sp. It is used for:

- Heart failure
- To lower lipid levels
- As a vasodilator

No known cardiac side effects.

**HORSE CHESTNUT** *Aesculus hippocastanum*. This is used in chronic venous insufficiency and swelling of legs. The active compound is aescin. Dose is 50 mg extract, twice daily. Side effects include dizziness, headache and nausea.

**KAVA KAVA** *Piper methysticum*. 
\[\text{Anticoagulant effect}\]
\[\text{Liver damage}\]
\[\text{Pulmonary hypertension}\]
\[\text{Hepatitis}\]
\[\text{Interacts with benzodiazepine (tranquilizes and produces excessive sedation)}\]

**LOMATIUM:** Causes a generalized rash.

**MA HUANG, *Ephedra sinica:*** This is a natural source of ephedrine. Increases blood pressure, thus can cause stroke and heart attack in certain individuals. Most side effects are due to use in combination with caffeine and guarana. Used appropriately, it is safe and effective.

13. **MOTHERWORT:** *Leonurus cardiaca.* Used in combination with Bugleweed (*Lycopus*) for the treatment of an overactive thyroid, can cause an increase in menstruation.

14. **ST. JOHN'S WORT:** Not recommended during pregnancy or breast feeding. Can cause: skin reaction, rash pruritus, photosensitivity, fatigue, dizziness, neuropathy, anxieties, mania. St. John’s Wort interacts with severe medicine, including the chemotherapy drug and heart medication Digoxin. Use of St. John’s Wort should be restricted

**YOHIMBE** Adverse effects include:

\[\text{Mania}\]
\[\text{Lupus-like syndrome}\]
\[\text{Causes hypertension}\]
\[\text{Agranulocytosis (shuts down white cell production)}\]
\[\text{Interferes with anti depressants}\]

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**Medicinal Plant – Drug Interactions**

*Image of Medicine Man*
Many herbs have allergic, idiosyncratic or anti-cholenergic effects which are enhanced when used in combination with other medications. The following are some newer additions to this complex field of drug interactions:

**CASCARA, SENNA** – **HEART MEDICATIONS**: Excessive use of Cascara or Senna can cause laxative induced electrolyte disturbance, creating problems with many heart medications.

**DAN-SHEN** (*Salvia miltiorrhiza*) – **WARFARIN**: The Chinese herb Dan-Shen interacts with Warfarin.

**DIURETIC HERBS – LITHIUM**: Diuretic herbs such as Dandelion, Juniper, and Birch Leaf, interact with lithium.

**EPHEdra**: When overused, Ephedra-based drugs can lead to hypertensive episodes with other medications.

**GINGKO** – **COUMADIN**: Gingko tends to enhance the anticoagulant effects of coumadin, a commonly used blood thinner.

**KAVA** (*Piper methysysticum*) – **XANAX**: Kava is used to relieve anxiety, but it interacts with Xanax.

**ST. JOHN’S WORT**: Can cause drug interaction with tyramine rich foods such as cheese and red wine.

**YOHIMBE** – **NASAL DECONGESTANTS**: Yohimbe can cross react with OTC nasal decongestants, and there have been reports of seizures and deaths.

**Herbs Which Can Interfere With Surgery**

The following herbs can interact during surgery and cause problems in patients undergoing surgery. These herbs should be stopped 5 – 7 days before undergoing surgical procedures.

1. **Echinacea** can cause asthma. It may have an effect on liver function.

2. **Ephedra Ma Huana** increases blood pressure and
Adverse Cardiovascular Effects

**DANG-SHEN** *Salvia miltiorrhiza*. Used for angina pectoris and acute myocardial infection. Inhibits platelet aggregation. Dang-Shen interferes with Warfarin clearances; if used in combination with blood thinners, it increases blood thinning capacity to potentially harmful levels.
FEVERFEW *Tanacetum parthenium*. Used in migraine prophylaxis, to decrease serotonin. Dose is 50-100mg dried leaves. Causes mouth ulcers. Increases bleeding when used with anti-platelet medication (aspirin).

How To Avoid Toxicity

Due To Herbs

1. Avoid Mixing Prescription Drugs With Herbs
Remember that herbs are medicine – just because they are available without prescription and can be purchased in any quantity does not mean they are for unlimited use or mixing. If there is a problem, for example mixing sedatives with Kava Kave or Valerian, the problem is not the herb itself.

2. Avoid Herbs With Pyrrolizidine Compounds
Certain herbs have components known for causing liver damage (Pyrrolizidine compounds). These herbs are not recommended to start, however lack of knowledge among users and some herbalists can lead to this being a perennial source of herbal toxicity. Some examples are:

- Comfrey
- Colt’s Foot
- Sassafras
- Borage family herbs
- Chaparral
- Germander

3. Proper Awareness of the “Big Picture”
Herbs affect blood pressure, kidneys and the blood coagulation. A knowledgeable use minimizes these side effects. For example, before any surgical procedures, you need to stop using aspirin and blood thinners (such as coumadin) to avoid increased bleeding. Likewise, the use of several herbs must also stop before undergoing surgery.

4. Proper Knowledge and Application
Each and every step is important in the effective use of herbs:

1. Proper diagnosis of medical conditions
2. Proper selection of herbs
3. Proper preparation of herbs
4. Proper quantity of medicinal herb
5. Proper duration of use

Self-diagnosing one’s own illness, picking out herbal medicines with a minimal knowledge of how they work, and taking as much as one wishes, is simply asking for more side effects. Do not forget that herbs are medicine and the use of herbs should be learnt through proper channels of instruction, with guidance and supervision, at least in the beginning.
Guidelines for Buying Herbs

The commerce of herbs in the United States lacks a quality set of standards, yet we can look abroad for information. Germany’s Commission E, equivalent to the FDA, has published materials regarding the safety and effectiveness of herbal medicine. The following are some common suggestions:

1. Check the recorded dose of the active ingredient in the herbs.
2. Always use standardized extracts of herbs from reliable sources.
3. Many herbs, especially when the active ingredient is a volative oil, have a limited shelf life. Refrigeration, for example of Feverfew, may prolong the shelf life.
4. The German Commission E’s published recommendations can be a useful guide with certain herbal products.
5. Herbs sold in bulk tablets and powders usually lack the reliability of potency. Fresh extract is the most useful preparation (Garlic tablets, for example, have lost some of their effect).
6. Avoid herbal teas, except Peppermint, Chamomile and Lemon Balm.

Some herbs have peculiar aromas. Valerian smells like old socks or leather. Echinacea causes numbness of the tongue after a few minutes. Many herbs used as 1. a vermifuge (anti-parasitic) have a turpentine-like aroma. 2. Stinging Nettle is effective as a freeze-dried preparation for the treatment of hay fever and allergies and has fewer side effects than the prescription drug, Seldane.

7. Certain medicinal herbs used in bitter tonics should not be taken due to the presence of the compound safrone, a proven carcinogenic and cause of liver damage due to veno-occlusive disease (VOD). Such herbs include Comfrey, Sassafras and Borage.

8. Some folk remedies promoted as a cure for hot flashes and other menopausal symptoms are adulterated by synthetic estrogens.

9. Garlic cloves should be eaten fresh not cooked, because the active ingredient is broken down to allicin which is destroyed at high temperatures. An alternative to eating fresh Garlic is the enteric capsule which contains raw powder; 600 mg.

10. The consumer should recognize that there is marked variability of natural plant products from batch to batch. For example, the concentration of the active ingredient of Ginseng, ginososide, ranged from between 2% and 9% in six known products in a recent survey.

Herbal medicine is much cheaper than prescription medicine, even consultations with herbalists run far cheaper than a visit to the doctor or specialist. An example of this is the prescription drug Prosvar (for benign prostate enlargement, BPH) which costs $3 per pill, whereas Saw Palmetto is available for only a few pennies. Further, anti-cholesterol drugs and blood check-ups for monitoring cholesterol may exceed $100 per month, compared to $1 to $2 for the cost of raw garlic.
**Botanical Name:** *Acacia nilotica*

**Active Constituents:** Bark produces an edible gum.

**Uses / Indications:** A small tree of Natal in southern Africa. The Zulu and Masai tribes have used it as a cough remedy. Useful to increase stamina, for depression, and for fungal infections. Increases prolactin levels. Available as a gum. Dose is powder in 8 parts water.

**Toxicity:** None known.

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**ALLSPICE (Jamaica Pepper)**

**Botanical Name:** *Pimenta dioica*

**Active Constituents:** Eugenol, volatile oil

**Uses / Indications:** It tastes like a mixture of other well known spices, such as cinnamon, cloves and nutmeg. Used as a local antiseptic and anesthetic. A folk remedy for rheumatism and neuralgias.

**Toxicity:** None known.

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**ALOE VERA**

**Botanical Name:** *Aloe vera*

**Active Constituents:** (Fresh and dehydrated juice) Salicylates, bradykinin (pain reliever) and magnesium lactate.

**Uses / Indications:** Usually grown as a common houseplant, Aloe has succulent foliage. Plant forms a cluster of leaves, growing approximately 1 ½ feet, with long green and orange flowers, and thick leaves which contain viscid, sticky juice.

Dehydrated juice has been used as a safe laxative. Fresh juice is used to treat burns, sunburns, abrasive cuts, insect bites and many other uses in skin care cosmetics. It also promotes healing of skin ulcers. Has mild anti-fungal and antibacterial properties.

**Toxicity:** None known.

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**ASAFETIDA**

**Botanical Name:** *Ferula assafoetida*

**Active Constituents:** Assafoetida is a resin obtained from roots.

**Uses / Indications:** Small herbaceous plant, foul smelling. Useful for painful joints, indigestions, as a carminative, expectorant and for psychiatric problems.

It is a common bazaar plant in the Indian subcontinent where its commercial preparation, Hing, comes from *F. assafoetida*. Used in the commercial
preparation of Worcestershire sauce. In folk medicine, used to prevent the habit of thumb sucking. Used in rheumatism and indigestion. One of the most ancient medicinal plants used in the Orient.

**Toxicity:** None known.

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**BALM OF GILEAD**

**Botanical Name:** Populus candidans

**Active Constituents:** (Leaf buds)

**Uses / Indications:** Gilead is an ancient territory of Palestine in the Jordan River valley. Balm of Gilead (Genesis 33:25) used in Biblical times was obtained from another tree called Pistachia lentis. At present, there are several other species that have been recognized.

The original Balm of Gilead was sticky chewing gum and came from the Greek island of Chios. Buds of this tree are covered in a resinous material with a balsamic odor. Boiling buds in olive oil produces an excellent expectorant. A tincture of alcohol extract, to dissolve resin, is useful for common colds and viral infections.

**Toxicity:** None known.

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**BANABA**

**Botanical Name:** Lagerstroemia speciosa

**Active Constituents:** (Leaves)

**Uses / Indications:** A popular medicine in the Philippines for reducing blood sugar levels (diabetes). It grows in India and other South Asian countries. Effect of the Banabas leaf is similar to insulin. Helps in weight loss. Dose is 20-40mg daily.

**Toxicity:** None known.

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**BASIL (Tulsi)**

**Botanical Name:** Ocimum basilicum

**Active Constituents:** (Leaves)

**Uses / Indications:** Country of origin is India. Used in culinary cooking and as a flavoring agent. Used medicinally in cough remedies, earaches and for ringworm. Ocimum sanctum (Holy Tulsi) is used in religious rites in India. Useful as an antimicrobial, for chest colds, fevers, weight loss, arthritis, and immune enhancement.

**Toxicity:** None known.

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**BEARBERRY – UVA URSI**

**Botanical Name:** Arctostaphylos uva-ursi

**Active Constituents:** Leaves contain the phenolic compound, arbutin, which is converted to hydroquinone in alkaline urine. (A small everygreen
Uses / Indications: Used for bladder irritation and mild urinary tract infections. Due to astringent effect, it was used to reduce bleeding during childbirth. Cold water extract of leaves is preferred preparation due to decreased tannin content. It turns urine green. Native Americans smoked it mixed with tobacco, and called it kinikinik.

Other herbs containing arbutin are:
- Heather (Una vulgaris) – erical?
- Pear (Pyrus communis) – leaf
- Black Haw (Viburnum prunifol) – bark
- Bilberry (Myrtelli)

Toxicity: Should not be used longer than 5 to 7 days. Avoid during pregnancy. Overdose can cause seizure.

BISHOP'S WEED

Botanical Name: Ammi visnaga
Active Constituents: (Ripe fruit)
Uses / Indications: Annual herbaceous plant with umbrella-like tiny white flowers. Useful for asthma, as an antispasmodic, and for intestinal colic. Had been used for Angina Pectoris, but not currently. Also called Visnaga or Khella. Used in the formula Vitiligo.
Toxicity: None known.

BLACK COHOSH – BLACK SNAKE ROOT

Botanical Name: Cimifuga racemosa
Active Constituents: Roots contain deoxyaceteine.
Uses / Indications: A common deep wood plant reaching a height of 6 ft. Has been used by North American Indians for different female ailments. Roots have been used for a bitter tonic and chorea. Possibly useful in abnormal nervous disorders. Useful for post menopausal symptoms, including hot flashes. Brings beneficial results (active constituent is deoxyaceteine) by blocking estrogen receptors, thus lowering the luteinizing hormone (LH), which is elevated in menopause. Herbalist Jethro Kloss found it useful in many spasmodic disorders and to treat high blood pressure. The authors have used it as an excellent antidepressant.
Toxicity: None known.

BLACK SEED

Botanical Name: Nigella sativa L. Kalonji (Black Caraway, Black Onion Seed)
Active Constituents: (Seed, oil) Nigellone
Uses / Indications: Flowers are delicate, blue, white. Fruit is large capsule. Seed has been used as a spice. One of the most neglected herbal
medicines in the west, though used for over two thousand years in Egypt, and recorded in the Old Testament. Useful for fatigue, allergies, asthma, bronchitis (due to its active compound nigellone), headache, migraine, rheumatism, flu, diabetes, and hypertension. Useful for its carminative, antiparasitic, and antimicrobial (for abscess) effects. Useful as a digestive aid and for immune enhancement. Oil is used for eczema.

**Toxicity:** None known.

### BLADDERWRACK

**Botanical Name:** *Fucus vesiculosus* (Sea Weed)

**Active Constituents:** High levels of iodine.

**Uses / Indications:** Used for obesity, to increase metabolism and in thyroid deficiency such as in goiters. It has antiviral effects.

**Toxicity:** None known.

### BLOOD ROOT

**Botanical Name:** *Sanguinaria canadensis*

**Active Constituents:** Roots contain several alkaloid, including sanquinarine.

**Uses / Indications:** Current use is markedly limited. Has been used in toothpaste, cough remedies, for rheumatism and as an abortifacient. Primary action is as expectorant and cathartic. Made into a salve for skin warts and early skin cancer it is an effective therapy.

**Toxicity:** Used as abortifacient. Internal use can cause serious side effects and even death. Not recommended for internal use.

### BUTCHER'S BROOM

**Botanical Name:** *Ruscus aculeatus*

**Active Constituents:** Ruscoside, ruscine

**Uses / Indications:** An ever green shrub with leaves reduced to scales and white flowers. Useful as an anti-inflammatory, excellent for interstitial cystitis, varicose veins, and has a beneficial effect on diabetes as well. Useful for circulatory problems such as retinopathy and venous disorders. Used in skin cosmetics.

**Toxicity:** None known.

### BUTTERBUR

**Botanical Name:** *Petasites vulgaris*

**Active Constituents:**

**Uses / Indications:** Similar to Colt's Foot, it grows near marshy places. It is analgesic. It helps muscle spasms and to relieve cramps. Useful in urinary tract colic. Used in combination with Pygeum.

**Toxicity:** None known.

### CALENDULA
**Botanical Name:** *Calendula officinalis* (Marigold)

**Active Constituents:** (Flower heads are medicinal)

**Uses / Indications:** It has glandular leaves and yellow orange flowers. Leaves and petals are edible. Used for anti-inflammatory, anti-spasmodic and anti-cancer effects, and for wound and skin ailments.

**Toxicity:** None known.

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**CARDAMOM**

**Botanical Name:** *Elettaria cardamom*

**Active Constituents:** (Whole seed)

**Uses / Indications:** A small aromatic herb used as an expectorant, unfamiliar in the west. Useful in detoxifying the effect of caffeine. Relieves nausea and vomiting, improves expectoration of bronchial secretions. Useful as a bitter tonic, increasing pancreatic function, thus improving diabetic symptoms and lowering blood sugar levels. Effective therapy for GERD (heartburns, intestinal colic, spasmodic irritable bowel syndrome). Effective for mild bronchial asthma and chest congestion when made into tea with honey. Dose: cup of tea made with 3 seed pods, 3-4 times a day.

**Toxicity:** None known.

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**CASCARA SAGRADA (Holy Bark)**

**Botanical Name:** *Rhamnus purshianus*

**Active Constituents:** Bark contains anthraclenes.

**Uses / Indications:** Also called California Buckhorn. A small tree on the pacific coast. Traditionally employed as a preferred laxative remedy among North American Indians. Parke Davis Company started using it in 1877. Barks collected need aging for 1 year before use.

Derived from *Rhamnus pushiana* as well as several related species from Washington state. Ethnobotanist, Ema Gunther, found it in use by several Native American tribes, and later adopted it herself. Named *Holy Bark* (*Cascara sagrada*) by a Spanish priest.

Has a smooth action without griping of the bowel. Has dual action in the anthraquinone (emodin), which is absorbed, and the glucoside content, which is absorbed, and acts distally in the bowel.

**Toxicity:** Prolonged use is not recommended. Maximum dose is 3 tablets per week.

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**CATNIP**

**Botanical Name:** *Nepeta cataria*

**Active Constituents:** (Whole plant)

**Uses / Indications:** A small, perennial herb, mint-like bitter taste with carminative action. Heart-shaped, oblong leaves, flowers in spikes. Carminative for treatment of flatulence and stomach upset, antispasmodic carminative. Cats are very fond of its aroma. Useful in iron deficiency, anemia, menstrual and uterine disorders. Useful for mild anxiety. Used for babies with colic, teething. Useful sedative effect in cases of hives. Dose is 2 leaves in a cup of boiling water.
CAYENNE PEPPER

Botanical Name: Capsicum sp.
Active Constituents: Capsaicin.
Uses / Indications: Cayenne dilates capillaries and is anti-inflammatory. Relieves pain due to the presence of capsaicin. Lowers blood pressure, lowers cholesterol. Has a blood thinning effect. Locally applied to muscle spasms, rheumatism, arthritis, and chilblains. Dose is ½ teaspoonful twice daily.
Toxicity: None known.

CHAMOMILE

Botanical Name: Matricaria chamomilla
Active Constituents: 
Uses / Indications: Useful for hyperactive children, insomnia, indigestion, and to calm down nerves.
Toxicity: None known.

CHAPARRAL

Botanical Name: Larrea tridentata
Active Constituents: Anti-oxidant (NDGA)
Uses / Indications: Has been used by Native Americans for snake bites, arthritis, tuberculosis, cancer, and as an herbal antibiotic for intestinal parasites. Has been known for liver toxicity, causing jaundice and kidney failure. Contains one of the best herbal antibiotics and anti-oxidants, NGGA. Popular in the southwest for cancer and diarrhea.
Toxicity: Can cause toxicity in animal grazing during shortage of forage. It is NOT RECOMMENDED at present by authors due to severe side effects.

CHASTE TREE

Botanical Name: Vitex agnus-castus
Active Constituents: (Fruit is the chasteberry) Contains iridoids, flavones, and also terpenes which inhibit prolactin secretion which is in turn useful in many women’s diseases.
Uses / Indications: A small shrub with lavender flowers. Useful for PMS (Premenstrual Syndrome) where it decreases prolactin levels, thus helping regulate menstrual cycles, decreases painful swelling of the breast, and is useful for dysmenorrhea.
Note: this tree is a symbol of Chastity, and is the opposite of an aphrodisiac.
Toxicity: None known.
CHILI PEPPERS

**Botanical Name:** *Capsicum frutescens*

**Active Constituents:** Capsaicin is the active constituent of Cayenne Pepper.

**Uses / Indications:** Capsaicin initially stimulates and then blocks pain fibers by depleting them of the neurotransmitter substance P. Useful for post herpetic neuralgia, arthritis and trigeminal neuralgia.

**Toxicity:** None known.

CHOLESTIN

**Botanical Name:** *Monascus purpureus*

**Active Constituents:** Produced by fermentation of red yeast, which contains the natural active HMGCOA reductase inhibitor that lowers cholesterol.

**Uses / Indications:** Cholestins lowers cholesterol by blocking the enzyme HMGCOA reductase. Dose is 2 capsules of 600 mg daily. Very effective in case histories of lowering cholesterol.

**Toxicity:** Minimal side effects, heartburns, abdominal discomfort.

COLT'S FOOT

**Botanical Name:** *Tussilago farfara*

**Active Constituents:** (Flowers and dried leaves) Leaves contain large amounts of mucilage, the active constituent is tussilagone. Several PA compounds (pyrrolizidine alkaloids) have been detected.

**Uses / Indications:** Well known since ancient times as a remedy for coughs, colds, sore throat and asthma. Has been used in many countries as a remedy for coughs and colds. In Canada, however, it is withdrawn from the useful list because of its toxicity. Tussilagone is a terpene compound which stimulates respiration. **Toxicity:** PA compounds are known to cause liver damage and be carcinogenic. Short term use may be safe, however, extended use and frequent use are not recommended.

COMFREY

**Botanical Name:** *Symphytum officinale*

**Active Constituents:** Large succulent leaves and roots contain allantoin (0.6%), along with tannic acid. Different species vary in alkaloid content, indicating a lack of toxin in some localities. Contains PA’s (pyrrolizidine alkaloids). Leaves usually have a lower PA content than roots.

**Uses / Indications:** Numerous uses in folk medicine, from mouth gargles to treatments for menstrual disorders and for rheumatic disorders, to name a few. Used for external wounds, to heal fractures, and in cough remedies. One of the few plants which produce B12 from cobalt in the soil. Acts as an astringent due to high tannin content. **Recommended use:** ONLY for external applications with no broken skin. **Toxicity:** PA’s cause serious liver damage (Veno Occlusive Disease, VOD) as well as cancer. Ready made capsules have a high PA content. Senecionine is a toxic compound which causes liver damage. **The authors do not recommend Comfrey for internal use.** This recommendation is based on the possibility of serious liver damage which can lead to death in some cases. It is true that some benefits may occur in short term use, however, liver damage is unpredictable.
CORN SILK

Botanical Name: *Zea mays*
Active Constituents: (The golden tassel at the end of a corn cob.) Contains magnesium, potassium and silica.
Uses / Indications: It is soothing for bladders and useful in cases of urinary tract infection with (cystitis) inflammation. Useful for Carpel Tunnel Syndrome, urinary incontinence, and bed wetting.
Toxicity: None known.

CRANBERRY

Botanical Name: *Vaccinium macrocarpon*
Active Constituents: Cranberry juice contains anthocyanins and malic acid.
Uses / Indications: Inhibits adhesion of bacteria to urinary epithelial cells. Works by acidifying urine, possibly due to high hippuric acid content. In some studies, higher doses of 12 oz. were considered effective. Useful in kidney stone diseases. Can be palliative for serious inflammatory skin disorders. Useful as an anti-oxidant, for scurvy and urinary symptoms. Cranberry juice, often combined with vitamin C, is useful for urinary tract infections. Pure cranberry juice has an anti-adhesion property which helps prevent bacteria from getting into the urinary tract system. Cranberry juice cocktail is often mistakenly used medicinally, but it is not effective. Take two doses daily, for a total of 12 to 16 ounces per day, of pure juice (can be frozen).
Toxicity: None known.

DATES (Tree of Life)

Botanical Name: *Phoenix dactylifera*
Active Constituents: (Fruit) Glucose, phosphates.
Uses / Indications: “The righteous shall flourish like a palm tree,” (Psalm 92:11) This is one of the palm species. The word *date* comes from the greek *daktylos*, referring to a bunch of dates resembling a finger. These are the richest source of instant energy, not only for glucose but also phosphates. It is one of the most underappreciated fruits (with natural instant energy). The authors recommend the use of dates in cases of debility, chronic fatigue syndrome and as an instant source of energy. Dates are still combined with several herbal compounds in Eastern medicine. Toxicity: None known.

DEVIL’S CLAW

Botanical Name: *Harpagophytum procumbens*
Active Constituents: Root is medicinal and contains the glycoside harpagoside.
Uses / Indications: This native of South African can easily grow in southern Appalachia. Useful for osteoarthritis, as an anti-inflammatory, and for indigestion. Dose is 1-2 grams for digestive disorders, 4-8 grams of powder for arthritis.
Toxicity: None known.
EAST INDIAN GINSENG

Botanical Name: *Withania somnifera*

Active Constituents: (Roots)

Uses / Indications: Well known in ayurvedic medicine. Roots are used for anxiety disorders and as an anti-aging agent. Leaves have an anti-inflammatory effect. Concoction of leaves is also used for skin disorders.

Toxicity: None known.

ECHINACEA

Botanical Name: *E. purpurea*

Active Constituents: Echinocoside, caffeic acid. (Fresh or dried roots are useful in *E. pallida* and in *E. angustifolia*. The upper part of the whole plant is useful in *E. purpurea*. All species have similar medicinal compounds, though in Germany, only *E. purpurea* is approved and is considered more effective than common US species, such as *E. pallida* and *E. angustifolia*.)

Uses / Indications: Named from the Greek word "Echino" for hedgehog, has a central cone with the prickly appearance of a hedgehog. Ten percent of herbal products sold in the United States are related to echinacea. Its mode of action is to increase phagocytosis. It inhibits the production of hyaluronidase, thus limiting bacterial spread. The activity of white cells, other than immune defense of the cell, is to kill bacteria and viruses.

Root extracts are commonly used as an immune stimulant for the following: chest colds and flu symptoms; Herpes – cold and canker sores; psoriasis – skin disease; throat infections; and urinary tract infections. Often combined with zinc, garlic and vitamin C. Echinacea – zinc tablets are used for viral and bacterial respiratory infections. Used for leg wounds, ulcers and rheumatoid arthritis.

Dosage: (Tinctures are better absorbed but less standardized.) Tincture, 60 drops, three times per day. Capsules, 2 daily for 10 days.

Native to the North America, this flower was used by Native Americans to treat snake bites, for toothaches and to cover wounds. Was popular at the turn of the century as a Meyer blood purifier. It has been used extensively in Europe as an immune enhancer against viral and bacterial infections of the upper respiratory tract. It seems to lessen the severity and duration of symptoms. Its mechanism apparently activates the Alternate Complement Pathway, thus enhancing the destruction of microbes.

Ultimately there is more hype than reality and many studies have shown conflicting results. Echinacea is most useful when taken regularly, it shortens the length of flu symptoms.

Toxicity: Not recommended in cases of HIV/AIDS, Multiple Sclerosis and Tuberculosis.

EPHEdra

Botanical Name: *Ephedra* sp.

Active Constituents: Alkaloids, ephedrine

Uses / Indications: Ephedra has been used in Chinese and Indian pharmacopoiesas for centuries as a treatment for asthma and in cold and cough remedies. It has a known CNS stimulatory effect. The active constituent ephedrine was isolated by the Japanese chemist Nagai in 1887. Subsequent
work by Chen in 1924 showed its bronchodilatory effect. It has since been in use in popular American OTC medicines for chest cold and asthma (Primatene, Sudafed). Synthetically made ephedrine is called pseudo-ephedrine.

It has also been used in many OTC slimming products and energy boosters (such as Herbal Ecstasy). Also, ephedra extracts were used as a starting point for illegal street drugs such as speed. High doses in combination with caffeine is being used as “speed”, with the resulting side effects which include severe agitation, insomnia and heart attack. Many deaths have been reported to the FDA, which prompted a warning label be required.

Ephedra products have become over a billion dollar industry.

**Toxicity:** High doses in combination with caffeine is being used as “speed”, with the resulting side effects which include severe agitation, insomnia and heart attack.

### ESSENTIAL OILS (Aromatherapy)

**Uses / Indications:** Essential oil as transdermal medication has been in use in the Eastern Mediterranean area since ancient times. In India, a combination of fragrance, vegetable oils, herbs, almond oil, and oil from different brassica plants, was used for scalp massage. The English word *shampoo* originated from the Indian word *champi*. The scalp is a convenient route for the transdermal application of herbal extracts which treat tension and arthritis and act as relaxation therapy and mood elevators. Unfortunately, the cultural perception in the West of “massage” holds very different and often unsavory connotations. **Toxicity:** None known.

#### EUCALYPTUS

**Botanical Name:** *Eucalyptus globulus*

**Active Constituents:** (Leaves) Volatile oil is primary constituent.

**Uses / Indications:** There are more than 300 species of this plant, a gift from Australian Aborigines. Causes dilation of bronchi, acts as an antiseptic. Used in several skin conditions and in bronchitis.

**Toxicity:** None known.

#### FENUGREEK

**Botanical Name:** *Trigonella foenum-graecum*

**Active Constituents:** (Seeds) High iron content in leaves.

**Uses / Indications:** An annual herb with medicinal properties as well as culinary benefits. Seeds are aromatic. Was used for chronic illness, such as an expectorant for bronchitis, fever, sore throat, neuralgia and skin sores, and was used as an aphrodisiac. It lowers cholesterol by decreasing absorption and increasing the bile acid lost. Consistency of the seed becomes jelly-like with water, and it is an excellent lubricant of the bowels. It is effective as an adjunct therapy for diabetes, it acts like insulin. Dose: needs 6-8 capsules, about 10 grams a day to be effective.

Useful for menstrual disorders, as an ointment for skin infections, as an aphrodisiac, and for bronchitis and cough.
FEVERFEW

**Botanical Name:** *Tanacetum parthenium*

**Active Constituents:** (Leaves)

**Uses / Indications:** A common garden plant, pungent odor, yellow disk flowers. A native of southern Europe, it was used by an old herbalist to treat fevers and febrifugia. Its main use is as a prophylactic treatment for migraine headaches. Powdered leaf taken with food can serve the same purpose as fresh leaves, which can be eaten mixed with other foods. Also useful in some cases of rheumatoid arthritis because of its effect on prostaglandin. It lowers fever, inflammation and menstrual cramps. Used externally for insect bites and bruises. Infusion of leaves is a mild disinfectant and insect repellant. Tansy was dedicated to the Virgin Mary. Ancients had a wide use for it. Dose is 50 mg to 100 mg of dried leaves. Take 3 to 5 fresh leaves with a slice of bread every day to treat migraines.

**Toxicity:** Not recommended during pregnancy. Fresh leaves may cause dermatitis. Side effects include mouth ulcers and an increase in bleeding when taken with aspirin.

FRANKINCENSE

**Botanical Name:** *Boswellia sacra*

**Active Constituents:** Gum resin, terpenes.

**Uses / Indications:** One of history’s most ancient fragrances, used as a burning incense in Egyptian temples during religious rites of the Mediterranean culture. It is a fragrant gum resin obtained from the Boswellia tree, a native to Somalia and the Arabian peninsula. It was used as an incense to remove evil spirits. Incense was believed to concentrate the mind on devotion by producing an elevated mental state and to have an effect through the psychic body.

It was used as an antiseptic, expectorant, decongestant and mouth wash for oral hygiene. Has also been used extensively as an anti-wrinkle agent in the oriental cosmetic industry. One of the varieties of Indian Frankincense, *Boswellia serrata* (called Shallaki, in Ayurvedic medicine), is considered safe and well tolerated for the treatment of inflammatory diseases. *B. serrata* has proven to be remarkably effective in rheumatoid arthritis, in the prevention of osteoarthritis, and in ulcerative colitis and Crohn’s Disease, by decreasing the overproduction of leukotriene, and has proven to be as effective as the widely prescribed Sulfasalazine. *B. serrata* contains boswellic acid (triterpene). It has an anti-inflammatory action in rheumatoid arthritis. Dose is 400 mg, threes times a day.

Its name comes from the French Crusaders who brought it to Europe (incense of Franks), also called *olibanum* (oil of Lebanon). Has been used in religious rites since the earliest biblical times. It was burnt into black powder called *kohl* and used as a cosmetic eyeshade and eyeliner.

**Toxicity:** None known.
Botanical Name: *Franklinia alatamaha*
Active Constituents: (Leaves) Catechins, flavonoids.

**Uses / Indications:** This is a rare flowering small shrub presently only found in a cultivated state. The Senior Author discovered it has catechins similar to the Chinese tea plant *Camellia sinensis*. In the Senior Author’s opinion, it is a tea plant of the New World and has the same health benefits as *Camellia sinensis* due to the presence of flavonoids, but without the caffeine. Its flowers have a mild sedative effect. Tea brewed from the leaves is refreshing and invigorating. Useful for Chronic Fatigue Syndrome, diabetes, and for palliative cancer care.

**Toxicity:** None known. Research is ongoing.

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**GARLIC**

Botanical Name: *Allium sativum*
Active Constituents: When garlic is crushed, the enzyme allinase converts allin into allicin. Later, it is converted into several other compounds of ajoene. Allicin’s mode of action: the active constituent allicin binds to sulphhydril groups which enhances fibrinolysys and lowers cholesterol. It also inhibits platelet aggregation; its antithrombotic effect is due to ajoene.

**Uses / Indications:** Garlic is derived from the bulb of *Allium sativum* and has been used medicinally since early Egyptian civilization. According to the Greek historian Herodotus, garlic was fed to the builders of the Great Pyramids for energy and strength, perhaps to keep their coronary arteries open by lowering cholesterol. Bulgarians have associated long life with the use of garlic. Incidence of stomach cancer is rare in those who include garlic in their diet.

Garlic and garlic constituents play a significant role in the reduction of deaths by malignant disease.

Aspirin and garlic are “Poor Man’s Statin” (a cholesterol lowering drug). Garlic decreases 15 – 25 mg of cholesterol (10% – 15%), it is equally effective compared to various anticholesterol medicines. It decreases bad cholesterol (LDL) and increases good cholesterol (HDL). After one month of therapy, there is a 9% - 12% reduction in cholesterol levels evident which persists at least 6 months. Triglycerides were also lowered compared to placebo. It is effective and beneficial in cases of mild hypertension.

Garlic helps in insect bites and stings due to inhibition of prostaglandia induced pain. Studies show garlic is effective in dysentery (*E. histolytica*) and has an antifungal effect, especially against *Candida albicans*. Raw garlic is soaked in cotton balls and applied to affected area of candida.

**Medicinal benefits:**

1. Lowers lipids
2. Lowers blood pressure
3. Anti-platelet activity, anticoagulant
4. Decreases plaque in arteries

**Dose:** take one clove of fresh garlic (0.4% allicin – 2.8 gm). Taking 800 mg of garlic powder lower cholesterol 12% and triglycerides 17%.

Dry garlic contains no allicin, neither does the oil based powder; the enteric form is preferrable. Adding garlic to a lowfat diet also adds spice.
Toxicity: Though there is no clinical data available, a drug interaction with anticoagulants is possible. Adverse effects are dyspepsia and malodorous breath which can be very effectively counterbalanced by chewing a small twig of parsley which has a high chlorophyll content. Garlic can pass to breast milk and possibly cause colic in babies.

**GINGER**

Botanical Name: *Zingiber officinale*

Active Constituents: Essential oil, gingerol

Uses / Indications: An aromatic root of a perennial herb which is a native of India. Has its roots in ancient history of eastern civilization, well known since 200 AD, a universal medicine in Ayurvedic medicine. Used as a carminative for indigestion, motion sickness, migraine headaches, coughs, colds, bronchitis and arthritis. It inhibits prostaglandins and is used for flavoring soft drinks, candies. It interacts with anticoagulants and reduces cholesterol. It is an effective therapy for sore throat.

Toxicity: Interacts with anti-coagulants, such as coumadin. One species, *Z. zerumba*, has cytotoxic effects and is used in cancer therapies.

**GINKGO BILOBA**

Botanical Name: *Ginkgo biloba*

Active Constituents: (Leaves, seeds) Ginkgolides. Mode of action is to improve the sensation of well-being by neutralizing free radicals and improving neuronal signal transmission.

Uses / Indications: The active constituent ginkgolides block the platelet activating factor, PAF, which explains its anti-allergic reaction. It was introduced to Europe in the 18th century, where it has become very popular. It is one of the oldest trees and considered to be a living fossil, a term coined by Darwin for Ginkgo. China has recognized the medicinal purposes of Ginkgo for centuries. It is one of the top five herbs used around the world. Useful for Alzheimer's Disease and other dementias, circulatory disorders, hypertension, asthma, depression, macular degeneration, and sexual dysfunction.

Ginkgo increases blood flow to the brain and improves memory function and circulatory problems. Useful for depression, asthmatic allergic reactions, Raynaud's Disease, urinary incontinence and inner ear problems.

Toxicity: It interacts with blood thinners.

**GINSENG**

Botanical Name: *Panax quinquefolius*

Active Constituents: Ginosides, saponins. Recent research shows, Ginseng may act through the production of nitric oxide, which may explain its wide spread and disperse mode of action in many body functions.

Uses / Indications: Ginseng is the most famous Taoist tonic herb, and has been known in Chinese culture for the last 5,000 years. A slow growing plant, it is not found in stagnant water. In 1711, Father Jartoux, a missionary in China, described ginseng as a *panacea* (a remedy for all kinds of illnesses). That knowledge was imparted to another Jesuit missionary, Father Joseph Labitau, in Canada. He in turn described its medicinal value
which fostered a growing and great demand. It is now a profitable export from the Far East. Ginseng was known to early 9th century Arab physicians, even Marco Polo wrote about it in his travels through China.

Ginseng is often misunderstood in American and dismissed as merely a Chinese aphrodisiac. Most present research is the outcome of Russian scientists who, in 1950, found Ginseng to be a remarkable adaptogen to stress.

In Chinese cultures, its therapeutic uses are for rejuvenation or re-setting the body clock, and it is often prescribed for a large number of disorders.

In Appalachia, it has been used to promote appetite. Ginseng tea has been used as a remedy for chest cold. (J. Kloss) According to the herbalist Catfish, "Cherokees and early settlers used it as a bitter tonic, for stomachic and as a sex pepper upper."

In most US sources for ginseng tablets are of the Siberian variety. Korean ginseng roots are either red or white. White ginseng is bleached with sulfur dioxide and then dried. Red ginseng is treated with hot steam prior to drying, which gives it its color. Ginseng is accepted as an official drug in the following countries: Germany, Austria, Switzerland, Japan, Russian, China, and Korea. There are three types of popular types of ginseng available:

1. American Ginseng
2. Korean Ginseng
3. Siberian Ginseng

American ginseng is a mild stimulant useful for the relief of stress and fatigue. Korean ginseng is used for athletic energy and endurance and is not recommended for patients with high blood pressure. Siberian ginseng is the best remedy for insomnia and mental stress. During the Vietnam War, it was used extensively by the Vietnamese to treat gunshot wounds.

Our clinic uses ginseng for the following:

- Chronic Fatigue Syndrome
- After major surgery
- Treatment of fatigue in cancer patients
- To improve stamina in Chronic Obstructed Pulmonary Disease (COPD). It can improve performance at low blood oxygen levels.
- Ginseng leaves made into a tea is useful as an analgesic, for backache, rheumatism, and as an antimicrobial for urinary tract infections.

**Toxicity:** Siberian ginseng is not recommended for patients with high blood pressure.

**GOLDENSEAL**

**Botanical Name:** *Hydrastis canadense*

**Active Constituents:** (Roots) Berberine has a known effect on macrophages. Astringent effect is due to two alkaloids, hydrazine and berberine. Berberine is bitter tasting and imparts a yellow color, and is found in other plants such as Golden Thread and Oregon Grape Root.

**Uses / Indications:** Called "Nature’s Antibiotic", it has been one of the most popular remedies, a panacea for multiple ailments. It is used for colds, flu
symptoms, nasal congestion, as a laxative, for hemorrhoids, gum disease, canker sores and stomach ulcers. It has immune stimulating effects. Has often been used in combination with echinacea as an immune stimulant and as a strong antiseptic, though research studies are lacking. Cherokee Indians used the root mixed with bear fat as an insect repellent.

Tincture of the yellow root produces a deep stain and has a bitter burning taste. Hydrastine and berberine have been used in commercial eye rinses. Both alkaloids have strong antiseptic effects against local mucosal infections, mouth sores, throat conditions and, in pill form, for traveler’s diarrhea.

Use as a mouth wash for canker sores, infusion in hot water is useful. For traveler’s diarrhea, 1 capsule 3 times a day.

Toxicity: None known.

GOTU KOLA (Kutannal)

Botanical Name: Centella asiatica
Active Constituents: Several alkaloids, glucosides and saponins.
Uses / Indications: A native plant of southeast Asia, used in various foods and salads. Used in Ayurvedic medicine for numerous medical ailments. It enhances body response to emotional disorders and anxiety. Helps improve memory (a brain food), arthritis, skin diseases, wound healing, vascular fragility and liver diseases. Considered one of the elixirs of life, a fountain of youth.
Toxicity: None known.

GRAPES

Botanical Name: Vitis vinifera (common wine grape)
Active Constituents: (Leaves, stem, fruit)
Uses / Indications: Astringent, diuretic. Seeds are used for their polyunsaturated acids. Some of the beneficial reports regarding heart disease are proclaimed by the wine industry, unfortunately, while the medical profession takes the bait, results are perhaps due more to the grapes than to the alcohol itself.

Red grapes contain polyphenol resveratol which acts like phytoestrogen and has a beneficial effect on heart disease, menopause, Alzheimer’s Disease, prostate cancer, and it lowers bad cholesterol. Resveratol is found in grapes, mulberries, etc.

Muscacline grapes (Vitis rotundifolia) have high levels of anthocyanins which produce red-purple grapes, and have strong anti-oxidant and anti-tumor effects.
Toxicity: None known.

GREEN TEA

Botanical Name: Camellia sinensis
Active Constituents: Polyphenols are chemicals found in green tea. They have an anti-oxidant effect, acting as a scavenger of free radicals. (Note: Polyphenols have often been mistaken for tannins, while tannins are have a similar chemical make-up, they are not present in tea.) Fluoride.

Uses / Indications: Twelve percent of tea used in the world is green tea, it is a small evergreen bush with white flowers. Green teas are not fermented like black tea (Oolong tea is partially fermented). It contains a high content of B vitamins. One cup of green tea contains 0.1 mg of fluoride, which is higher than fluorinated water. The astringent flavor is due to the polyphenol content (not tannins). Green tea is used in candy bars, body care products and sunscreen lotions.

Green tea is rich in catechin, EGCG (epigallocatechin gallate) which is a strong anti-oxidant, perhaps 200 times stronger than vitamin E. It has a protective effect against respiratory infections and food poisoning. It reduces total LDL cholesterol levels. It blocks the adhesion of bacteria to teeth,
thus preventing cavities.

Green tea has been used in Eastern culture for several thousand years, though its use in the United States is less common. Black tea is fermented during its processing and the majority of the world's population drinks black tea because of its aroma – keeping in mind, tea is the second most consumed beverage in the world after water.

According to a Shanghai study, green tea drinkers have reduced risks for several cancers. It has a beneficial effect on prostate infections and cardiovascular diseases. It reduces blood pressure, releases the risk of stroke and heart attack, and helps skin cancer when used topically. There is a 50% fewer cases of ovarian cancer in tea drinkers (taking at least 3 cups daily) than in coffee drinkers.

**Toxicity:** None known.

**HAWTHORNE**

**Botanical Name:** *Crataegus* sp.
**Active Constituents:** (Leaves, flowers)
**Uses / Indications:** Small shrub-like tree, used for mild hypertension, angina. Dose is 160 to 300 mg daily. Uses include:

1. Congestive Heart Failure
2. Increase heart contractions
3. Anti-oxidant
4. Decrease blood lipids
5. Increase blood flow, may be useful for high blood pressure. Dose is 900 mg twice daily, for a minimum of six weeks.

**Toxicity:** No known side effects or drug interactions.

**HENNA**

**Botanical Name:** *Lawsonia alba*
**Active Constituents:** (Leaves)
**Uses / Indications:** Powdered leaves used as hair dye, combined with Indigo yields a blue black color. Has antiseptic, antibacterial, anti-cancer (in skin cancer) effects.
**Toxicity:** None known.

**HIBISCUS**

**Botanical Name:** *Hibiscus sabdariffa*
**Active Constituents:** (Flowers, leaves)
**Uses / Indications:** Common decorative, glabrous shrub, flowers are astringent. Hypoglycemic for constipation. Leaves and flowers are useful for
healing ulcers, mild hypertension, and menstrual disorders. Juices used for in the cosmetic industry for coloring hair and in mascara. Red tea is made from the cup-like structure formed by the sepals. It lowers body temperature and blood pressure. Increases production of urine, combine with Lemon Balm, it is useful in anxiety conditions. Another species of Hibiscus (H. rosasinensis) is used as chemo protection in cancer treatment.

**Toxicity:** None known.

**HOODIA**

**Botanical Name:** *Hoodia gordonii*

**Active Constituents:** P57 molecule (pregnane glycoside, which mimics glucose), cardiac glycoside.

**Uses / Indications:** A cactus-like plant native to the Kalahari Desert in South Africa. It resembles cactus but belongs to the Dogbane family (*Apocynaceae*). It is a leafless succulent, pale purple flower, traditionally used as a food source and for stamina. Often an ingredient in diet pills. The fleshy part of the stem is used as an appetite suppressant although results as a weight reducing panacea are often less spectacular than claimed. Recommended dose is 12,000 mg per day.

**Toxicity:** None known.

**HOPS**

**Botanical Name:** *Humulus lupulus*

**Active Constituents:** (Female flower cluster, strobulus.) The principal constituents are lupulone, rutin, and phenols.

**Uses / Indications:** A perennial, twining vine with a peripheral root. Effective as a dietary supplement for post menopause symptoms. Used as a mild sedative, for the treatment insomnia and anxiety disorders, and as a febrifuge and vermifuge.

As a bitter tonic, improves and stimulates appetite. Used as a bitter tonic and mild sedative in many folk remedies (per the herbalist, Catfish). Used to impart aroma to beer, also prevents bacterial growth in beer. Dose is ½ teaspoonful of dried leaves in a cup of hot water, as needed.

**Toxicity:** Though quite safe when used alone, in combination with other medicinals it can have a sedating effect and should not be taken with other prescription drugs. Hops leaves can cause skin allergies in some persons (due to myrecene content).

**HOREHOUND**

**Botanical Name:** *Marrubium vulgare.*

**Active Constituents:** (Leaves)

**Uses / Indications:** A perennial herb, native of Europe, naturalized in the United States. White hoary appearance, balsamic odor. Use as an expectorant, diuretic, remedy for cold and cough; very useful for chronic sore throat. Boil heaping tablespoon of leaves in a pint of water with honey to make expectorant.

**Toxicity:** None known.

**HORSETAIL**
HYSSOP

Botanical Name: *Hyssopus officinalis*
Active Constituents: (Tops, leaves) Contains the compound MAR 10.
Uses / Indications: Perennial herb, bluish flower, 1 – 2 ft high. Hot, spicy taste, slightly bitter, sulphur containing oil. Carminative, tonic, expectorant, external application for bruises. Used in various cough remedies. Contains the compound MAR 10, which may be helpful in HIV infections. Known since early biblical times, “Purge me with hyssop and I shall be clean.” (Psalm 51:7)
Toxicity: None known.

JAVA TEA

Botanical Name: *Orthosiphon aristatus*
Active Constituents: (Dried leaves)
Uses / Indications: A perennial herb with unusual white lilac flowers in spikes with very long stamens. Useful as a diuretic, for urinary tract infections, as an anti-microbial, to help pass kidney stones by dilating ureters. Dose is 1 teaspoonful in cup of hot water, daily.
Toxicity: None known.

KAVA-KAVA

Botanical Name: *Piper methysticum*
Active Constituents: (Roots, stem, leaves)
Uses / Indications: *Kava*, in Tahiti, means salty and sharp. A small native shrub from the South Sea Islands. Has been used for food, as medicine and as a sign of good will in the Pacific Islands for centuries. It does not cause physical addiction.

Used as a mild sedative to relieve anxiety and tension, stomachic, an effective alternative to anti-anxiety prescription drugs. Prolonged use can cause rash, used in Hawaiian medicine for various ailments and to counteract fatigue.

Toxicity: Overindulgence of kava may impair driving ability. When used at low doses without a history of liver disease or alcoholism, it is safe. It will cause serious side effects similar to the prescription drug benzodiazepines.

KHAT

Botanical Name: *Catha edulis*
Active Constituents: (Fresh leaves)
Uses / Indications: A small tree or bush with reddish stem and thick, toothy leaves. Origin is Ethiopia. Used in folk medicine to treat fever and diarrhea. Chewing leaves causes a euphoric feeling similar to ephedra.
Toxicity: It suppresses sexual drive. Side effects are hypertension and addiction.

LADY’S SLIPPER

Botanical Name: *Cypripedium pubescan*
Active Constituents: (Roots)
Uses / Indications: Used as a mild sedative. Roots are used for neuralgia. Often mixed with Passion Flower and Hops as a remedy for insomnia. Cherokee Indians used a root concoction for dispelling worms in children.
Toxicity: None known.

LEMON BALM

Botanical Name: *Melissa officinalis*
Active Constituents: (Leaves) Contains essential oils and terpenes.
Uses / Indications: A pleasant aromatic herbaceous plant, native of the Mediterranean, known by the ancient Greek writers. Excellent for a soothing effect and relief of tension headache. Also used for palpitations, for excitability in hyperthyroidism, as an antibacterial, an antiviral, a spasmolytic, as insect repellent and for insect bites and menstrual irregularities. A Lemon Balm cream is useful for herpes mouth (lip) sores and fever blisters. A general soothing tonic, helps in cramps, as an emotional stabilizer, for insomnia, and as a mild diaphoretic.

In medieval times, it was used for various purposes, from use for toothache to use as an amulet and as a love charm. Currently used to flavor foods. Was listed in USP. Spasmolytic. Use a teaspoonful of dried leaves in a cup of hot water.
Toxicity: None known.

LEMON GRASS

Botanical Name: *Cymbopogon schoenanthus*
Active Constituents: (Leaves)
Uses / Indications: Useful as a mild diuretic, a general tonic, and for mild depression. Used as a tea and in aromatherapy.
Toxicity: None known.

LICORICE

Botanical Name: *Glycyrrhiza glabra*
Active Constituents: (Roots) Main constituent is glycyrrhizin, which is 14% of the root content. Over 200 different chemical extracts, which have varying modes of action.
Uses / Indications: Licorice root has been used in India for stomach and respiratory ailments for thousands of years. Root extracts are known to
inhibit the growth of several viruses in cultures of bacteria and candida. Effects of licorice are similar to corticosteroid.

It is used widely as a sweetener and as an additive to sweetener. Glykys, greek for sweet, and rhiza, root, give the genus name Glycyrrhiza – “sweet root”. Most sweets cause thirst when ingested, but with licorice, thirst is not significant. Licorice has long been used in food industries as a flavoring agent to increase the intensity of the sweetness, even adding licorice to chocolate. Reduced 10%, licorice acts as a sweetener potentiator. Used to flavor meats, cough drops, laxatives, throat lozenges, mouthwashes, pipe tobacco and chewing tobacco, or snuff. It is more common in the low sodium, low calorie, low sugar food supplements that are used commercially. Artificial sweeteners, such as saccharin, have a bitter taste, licorice is used to mask bitter and unpleasant tastes. Most food labels describe it as a “natural flavoring substitute” and try to hide its true identity.

Licorice candy commercially available in the United States is actually flavored with artificial licorice or anise, and imported from Turkey and Spain. Licorice is 50 – 150 times sweeter than sugar. As the myth goes, ancient warriors went without drinking or eating for days when they were supplied with licorice and cheese. Modern licorice candy has its origin in Egyptian and medieval Islamic culture. Licorice combined with honey has been used extensively during the Islamic holy month of Ramadan. In Europe, licorice was used in the English Pontefract cakes in during the 18th century.

Licorice has a history from the days of Pharoah and was stored with other precious jewels in King Tut’s tomb. It was also well described in the ancient civilizations of China and India. The 17th century herbalist, Culpeper, described a concoction of licorice, fig and Maiden Hair fern, as a remedy for cough.

Useful for the following:

- Addison’s disease
- Cough
- Peptic ulcer, gastric ulcer
- Heals oral ulcers
- Shingles
- Eczema – external use
- Helpful to quit smoking
- Atopic dermatitis
- Cancer prevention
- Protection for liver disease

Toxicity: Effects of licorice are similar to corticosteroid. Side effects include loss of potassium, elevation of blood pressure, fluid retention, and other corticosteroid associated symptoms. Licorice’s main constituent glycyrrhizin alters cortisol metabolism causing hypokalemia and water retention.

**MANGOSTEEN**

**Botanical Name:** Garcinia mangostana

**Active Constituents:**

**Uses / Indications:** This native tree of Thailand has a purple fruit the size of an orange. Useful as an anti-inflammatory, for allergic skin reactions, and
as an anti-microbial.

**Toxicity:** None known.

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**MARSH MALLOW**

**Botanical Name:** *Althaea officinalis*

**Active Constituents:** (Roots)

**Uses / Indications:** A small, herbaceous plant growing in bogs and marshes. Has been popular in medicinal use in Europe since the time of Charlemagne. While it has been used for respiratory inflammatory conditions, presently the word *marshmallow* has evolved into nothing but a soft, puffed up sugar concoction.

In olden days, extract from the roots of the plant was cooked with sugar and egg white as a medicinal agent for sore throat and upper respiratory disease. At present, however, food manufacturing companies have stopped using the root extract. Marsh Mallow is of no medicinal value.

**Toxicity:** None known.

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**MILK THISTLE**

**Botanical Name:** *Silybum marinus* (Our Lady Thistle)

**Active Constituents:** (Seeds) The active extract silymarin (flavonoids) acts as an anti-oxidant. It is botanically related to other thistles, though only *Silybum marinus* contains silymarin.

**Uses / Indications:** This tall, common, roadside bush with milky sap is a native of the Mediterranean countries. Most studies on Milk Thistle are from Germany. The seed extract contains silymarin, which helps the liver to regenerate, and has even been found to help in mushroom poisoning and liver toxicity. Other uses are for hepatitis, cirrhosis, chronic liver disease, and for its anti-oxidant effects in protecting against oxygen radical mediated damage.

Silymarin is water insoluble and only effective as a concentrated extract. Recommended dose is 420 mg daily for 6 – 8 weeks.

**Toxicity:** None known.

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**MINTS**

**Botanical Name:** *Mentha* sp.

**Active Constituents:** Volatile oil. Peppermint and Spearmint are the most common mint plants.

**Uses / Indications:** Mentha contains at least 25 species which have a peculiar aroma and taste. Used in anti-septic, analgesic decongestants. Has a mild anesthetic effect, give a cooling effect. Has been used since early Egyptian culture.

Menthol (peppermint oil) has been used as an antispasmodic in China since the 16th century. A more recent edition of the Lancet (10/14/95) described the use of peppermint oil for irritable bowel syndrome and painful spasms. It is also currently being used during colonoscopies and barium enemas to reduce spasms. Recommended dose: 1 – 2 drops in sugar.[6]
A leaf of mint in milk prevents it from curdling.

**Toxicity:** None known.

**MISTLETOE**

**Botanical Name:** *Viscum album*

**Active Constituents:** (Leaves, berries) American species (*Phoradendron*) is toxic. Viscotoxin, lectins.

**Uses / Indications:** Mistletoe has been known as an important herb since the times of Pliny (a Roman Historian) who mentioned it as an antidote for all poisons.

**Uses:**
- Relaxes the nervous system, in Chorea, and epilepsy (following sickness)
- Eating leaves daily guards against stroke
- To treat fever.

Mistletoe has been used in Europe for its anti-cancer properties. It supposedly modulates the immune system and has a toxic effect on cancer cells. The word *mistletoe* is Celtic, meaning *all-heal*. The English word is derived from *mistelltan*, twig.

Although decreases the side effects of chemotherapy, the USDA has not approved its used in cancer or any other illness. Dose is 2 ounces of plant in \(\frac{1}{2}\) pint of boiled water. Use 1 tablespoon, two to three times a day.

Rudolph Steiner, an Austrian Swiss physician, first proposed its use in cancer in 1920. He founded the Anthroposophical Society in Germany. There are at least a dozen clinics in Europe which base their practice on human beings as a unity of body, soul and spirit (similar to holistic medicine). There are several varieties of mistletoe, but only the white berries of *Viscum album* are used in cancer therapy.

The three types of mistletoe are pine, spruce, and deciduous tree mistletoe. Mistletoe is a parasitic evergreen that lives on host trees (Ash, Hawthorne, etc.). Iscador is used as an injection for the treatment of cancer. Mistletoe contains two types of tumostatics (slowing the growth of cancer), viscotoxin (more in summer) and lectins (more in winter). These biochemical have a toxic effect on cancer cells. Iscador is given along with cancer therapy (chemotherapy or radiation therapy). It is given 3 times a week; after 14 injections, there is a week’s pause. There are over 100 species of mistletoe worldwide. Some are currently used for different diseases.

**Toxicity:** The American species (*Phoradendron*) is toxic. The USDA has not approved its used in cancer or any other illness. The FDA does not allow injectable mistletoe (Iscador) to be imported or used in the United States except for research.

**MUCUNA**

**Botanical Name:** *Mucuna pruriens* (Cow Itch)

**Active Constituents:** (Whole plant is medicinal) Seeds contain 15% L-dopa.

**Uses / Indications:** This annual climbing vine growing 30 feet in length is a popular medicinal plant in India. Dark purple flowers have black seeds 1 cm long, and S-shaped pods covered with stinging hair. Mucuna seeds contain L-dopa, an important ingredient in medicine used to treat Parkinson’s
Disease. Called *Cowhage* in India, *Kawach* in Hindi, and *atmagupta* in Sanskrit (*naikurna*). The ancient Indian system of Ayurvedic medicine prescribed it for the following uses:

- Diuretic
- Intestinal worms
- Stimulant
- Aphrodisiac
- Laxative
- Diabetes

In South America, used as a coffee substitute, called *Nescafe*. It has been used as an anti-venom for the common poisonous snake *Echis carinatus*, whose bite causes severe bleeding and hemorrhaging. Mucuna induces coagulation, thus stopping hemorrhaging.

**Toxicity:** None known.

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**MYRRH**

**Botanical Name:** *Balsamadendron myrrh*

**Active Constituents:** (Resin)

**Uses / Indications:** This small shrub is native to countries around the Red Sea and has a long legendary history. Resin, thus obtained, has great commercial value. Its incense was used as a holy oil and by Egyptians in embalming. Other uses:

- Antiseptic, as a mouthwash and for ulcers
- Astringent for gum disease
- Chronic diarrhea
- Disease of prolonged cataracts

Has been used as a plaster with camphor and has been used as incense combined with Balm of Gilead, Frankincense and Cinnamon.

**Toxicity:** None known.

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**NETTLE**

**Botanical Name:** *Urtica dioica* (Stinging Nettle)

**Active Constituents:** (Leaves) Formic acid and serotonin cause a stinging sensation which is lost when cooked or dried.

**Uses / Indications:** A 3 – 5 ft tall, bushy plant with tiny prickles on branches. Has been used in folk remedies as an astringent and diuretic and for various conditions and ailments such as a asthma, prostate conditions, and for rheumatic and musculo-skeletal complaints. It is an effective remedy for hay fever.

**Toxicity:** Causes a stinging effect, which is lost when cooked or dried.

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**OLIVE OIL**
Botanical Name: *Olea europa*

Active Constituents: Oil expressed from ripe fruit.

Uses / Indications: The olive branch is a symbol of peace. Olive oil holds an important place in Mediterranean civilization. According to the Greek mythology, olive oil was a gift to Athens from the goddess Athena. Homer called it *liquid gold*. Hippocrates described it as of great therapeutic value. It was a major source of commercial power for the Greeks in ancient times.

Olive oil contains a significant amount of fat in the Mediterranean diet, *MUFA*, a monosaturated acid, lowers LDL and helps benefit levels of HDL. It has anticancerous properties and there is a decreased risk of breast cancer in Spain, Greece and Italy. Olive oil has antioxidant properties.

Olive oil is used in liniments and ointments, and also in skin and hair care products, such as combined with rosemary oil for dandruff. It is anti-septic, astringent, a chologogue (helps in the secretion of bile), a febrifuge (use concoction of leaves), and a laxative. Used externally for burns, insect bites and pruritus.

Toxicity: None known.

**PARSLEY**

Botanical Name: *Petroselinum crispum, Petroselinium sativum*

Active Constituents: (Whole plant) Contains flavonoids, essential oils, myristicin, and eugenol.

Uses / Indications: Aromatic, diuretic herb, used for flavoring food. Good for menstrual complaints and rheumatism. High chlorophyll content is good for “dragon breath”. Useful as a mild laxative, anti-microbial, to prevent gallstones, for chest colds, and to treat mild urinary tract infections.

Toxicity: Do not use if pregnant.

**PATCHOULI LEAF**

Botanical Name: *Pogostemon patchouli*

Active Constituents: Oil extract of leaves. Belongs to mint family.

Uses / Indications: Native of Sylhet, Bangladesh. Oil extract has been used as an antiseptic and for the prevention of syphilis for centuries. Used extensively in the cosmetic industry.

Toxicity: None known.

**PAW PAW**

Botanical Name: *Asminia trioba*

Active Constituents: (Bark, fruit)

Uses / Indications: Bark is medicinal, fruit is an edible berry. Bark is useful for possible anti-cancer effects (research is ongoing), and as a pesticide.

Toxicity: Research is ongoing.
PENNYROYAL

Botanical Name: *Hedeoma pulegioides*


Uses / Indications: A small plant with yellow roots and blue flowers. Native Americans used it for rheumatism and for muscles (rubbed on the skin). Uses for nosebleeds. Has been used as a an emmenagogue, abortifacient, stimulant and carminative. Used as an insect repellant and is especially effective against chigger bites.

Toxicity: Ingestion can cause serious liver damage.

PEPPERBARK TREE

Botanical Name: *Warburgia salutaris* (also called Muranga)

Active Constituents:

Uses / Indications: This slender evergreen treee is a native of South Africa. It has greenish white flowers. Leaves and bark have a peppery taste; leaves have a bitter burning taste. Useful for chest complaints, as an expectorant, for rheumatism, headache, toothache, and for its antimalarial and antimicrobial properties.

Toxicity: None known.

PEPPERMINT

Botanical Name: *Mentha piperita*

Active Constituents: (Leaves, flowers)

Uses / Indications: A perennial herb, leaves on stalk, sessile in case of spearmint, has a peculiar aroma. Used since ancient times. Widely used as a carminative and as a treatment of flatulence. Useful for Irritable Bowel Syndrome, the common cold, indigestions, bloating, allergic skin disorders, insect bites, muscle spasms, and as a local application for Herpes sores. Tea made from dried leaves (1 tsp dried leaves per cup) 1-3 times a day.

Toxicity: None known.

POMEGRANATE

Botanical Name: *Punica granatum*

Active Constituents: (Fruit rind, bark root) Tannins (30% of the fruit rind)

Uses / Indications: This small tree has been used for over 4,000 years, and is a popular fruit and medicine in the East. Has been a popular remedy for intestinal parasites and tapeworms since early Egyptian writings. Use as an astringent for diarrhea, excessive perspiration and sore throat. Has antiviral activity, especially in upper respiratory viruses.

- Pomegranate juice is the most effective treatment of diarrhea and food poisoning. Take 2 ounces every ½ hour for a total of 8-12 ounces.
- Anticancer prophylaxis for Breast Cancer
• Antioxidant, anti-hypertension.
• Extract combined with other natural remedies is useful for hot flashes.
• Anti-acne
• Antimicrobial

**Toxicity:** None known.

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**PRICKLEY PEAR (Cactus)**

**Botanical Name:** *Opuntia* spp.

**Active Constituents:** (Fleshy pod, juice)

**Uses / Indications:** The fleshy pods, called *nopales*, are medicinal and useful for diabetics in lowering blood sugar. Dose is 1 tablespoon three times a day. Useful for lowering cholesterol and as a local treatment of wounds, burns and earache. Flowers may be useful in diseases of prostate inflammation.

**Toxicity:** None known.

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**PSYLLIUM**

**Botanical Name:** *Plantago psyllium* (another common plant species is *Ovata indica*).

**Active Constituents:** (Seeds)

**Uses / Indications:** Psyllium has been extensively used in Ayurvedic medicine, where it is mixed with buttermilk for diarrhea, when mixed with warm water it is used for constipation. It is also used in colitis. It is a very high source of dietary fibers, reduces blood cholesterol and glucose. An excellent preventative medicine for heart disease. Has a beneficial effect on raising HDL cholesterol.

**Toxicity:** On rare occasions, causes allergic rhinitis.

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**PUMPKIN SEEDS**

**Botanical Name:** *Curcurbita pepo*

**Active Constituents:** (Seeds, oil) Rich source of zinc.

**Uses / Indications:** Useful for prostate enlargement, intestinal parasites (tapeworms), and as a mild diuretic. Often combined with other herbs such as Pygeum and Saw Palmetto.

**Toxicity:** None known.

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**PYGEUM**

**Other Names:** African Plum; Iluo and Ula (Cameroon); and Umdumezulu (South Africa)

**Botanical Name:** *Prunus africana* (Hook.) Kalkman (African Plum)

**Active Constituents:** (Bark, Bark Extract) Beta sitosterol.
**Uses / Indications:** Bark extracts are the main therapy for benign enlargement of the prostate (BPH). For BPH it is often combined with Pumpkin Seeds, Saw Palmetto, and Lycopene. Tea made from this African evergreen tree is used for enlarged prostate, urinary incontinence, and urinary tract infections. Its main use is in Europe for enlarged prostates, used in 100 mg doses in 6-week cycles. It is often mixed with nettle leaf extract. Its medical activity is due to beta sitosterol, which is also present in Saw Palmetto and Curcurbita pepo (Zucchini).

**Toxicity:** None known.

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**RHUBARB**

**Botanical Name:** *Rheum palmatum*

**Active Constituents:** Roots are used as medicine, leaves are poisonous. (Edible rhubarb, *R. rhabarum*, is a cultivated species and its roots have no medicinal value.) Contains chrysophanol, emodin, rhein and tannins. Contains the same anthraquinones as cascara.

**Uses / Indications:** Rhubarb was unknown in the West until the 18th century when it quickly became one of the most widely used Chinese herbs in Europe. Used for constipation and menstrual disorders. Rhubarb has unusual medicinal qualities and acts as both a cathartic (laxative) and astringent (control of diarrhea). Has well balanced opposite actions, and is considered one of the safest laxatives for pediatric use. When boiled, rhubarb roots are left with an astringent effect and can be used as a good medicinal remedy for diarrhea (because of its tannin content). Dose is 1-2 gm of powdered root, used as a blood cleanser.

**Toxicity:** Leaves are poisonous.

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**ROSEMARY**

**Botanical Name:** *Rosemarinus officinalis*

**Active Constituents:** (Leaves, oil) Essential oil contains borneal, camphor.

**Uses / Indications:** This aromatic herb is a symbol of loyalty, traditionally carried by mourners and brides at weddings. Used to treat nervous exhaustion, digestive disorders. Excessive use can cause abortion. Crushed leaves were used to wrap meats, acting as a preservative. Oil of rosemary is a strong antioxidant, preventing the oxidation of fat and avoiding subsequent damage to the organ. Useful for headaches and stomach pain. Properties include: analgesic activity, muscle stimulant, antibacterial antioxidant and increases bile flow. Inhibits tumor growth. Prevents food poisoning.

**Toxicity:** Excessive use can cause abortion.

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**SASSAFRAS**

**Botanical Name:** *Sassafras albidum*

**Active Constituents:** Root bark, which contains the volatile oil, safrole.

**Uses / Indications:** One of the first botanical herbs sent from Europe to the New World. Has been used in the food industry to thicken soups, as well as in the perfume industry. In the past, wood shavings were used to flavor root beer. Useful in menstrual pain and rheumatism. In Appalachia, it has been a popular tea drink for a long time.

**Toxicity:** Safrole is carcinogenic and increases hepatic toxicity.
SAW PALMETTO

Botanical Name: *Serenao repens*
Active Constituents: (Berries) Fatty acids and sterols.
Uses / Indications: This small palm tree with creamy white flowers and dark blue berries is the most common palm in the United States where it is commonly grown in the southeast. Most research has been done in Germany. Berries are used as an expectorant and tonic. It acts by inhibiting androgen metabolism. Recommended dose is 160 mg, twice daily, of a standardized extract. Currently being used to treat Polycystic Ovarian Disease (POD) and hirsutism in women. Berry extract is known to decrease the size of enlarged prostates in benign prostatic hypertrophy (BPH), give a marked improvement in symptoms. It was widely used as an expectorant and mild diuretic in the late 19th century and for the treatment of milk cystitis. Has been used in folk medicine for head colds and as an aphrodisiac.
Toxicity: None known.

SENNACassia angustifolia (Indian Senna); C. acutifolia (Alexandrian Senna)
Active Constituents: Anthraquinones
Uses / Indications: Senna is an Arabic name. It has been used in Unani medicine since the middle ages. It was passed on to Europe during the crusades. Has remained popular because as a laxative, it is relatively less harsh on bowels. One of the most effective laxatives known, it produces a formal stool, and not diarrhea, as is caused by various prescription drugs and mineral sodas. Often used in slimming concoctions. If used sensibly and not habitually, it is one of the safest laxatives.
Toxicity: Because of its side effects, use should be limited to 1-2 times per week, and not daily.

SELF HEAL

Botanical Name: *Prunella vulgaris*
Active Constituents: (Whole plant) Contains camphor and betulimic acid.
Uses / Indications: White or lilac flowers used in early chinese materia medica. Edible, used in salads. Used as an astringent, to lower fever, as an antiseptic, as a mild diuretic and as an antispasmodic. A classic Irish herb (called *Heart’s Ease*), uses include:
  * Stops bleeding (*Carpenter’s Herb*)
  * Respiratory complaints, chest congestion
  * Eczema
  * Cold sores (possibly an effective remedy for herpex skin lesions.
  * Used as a hot water concoction, externally.
Dose: use as a tea, one ounce of dried leaves and flowers, boiled in one pint of water, take 2 tablespoonfuls, three times a day.
Toxicity: None known.
SHEPHERD'S PURSE

Botanical Name: Capsella bursa-pastoris
Active Constituents: High tannin content.
Uses / Indications: Has a strong astringent action which helps stop bleeding. Useful for diarrhea and for control of excessive menstrual periods.
Toxicity: None known.

SHITAKE MUSHROOM

Botanical Name: Lentinus edodes
Active Constituents: Lentinan
Uses / Indications: Stimulates the production of natural killer T-cells and lymphocytes, and is anti-carcinogenic. Have been used for centuries in Japan for anti-aging effects and to enhance the immune system. Reduces cholesterol and blood pressure, is antioxidant. Mushrooms are also good sources for zinc.
Toxicity: None known.

SIBERIAN GINSENG

Botanical Name: Eleuthrococcus senticosus
Active Constituents: (Root bark)
Uses / Indications: Has woody roots, much longer than P. ginseng. Root bark has been used in China for a long time. Russian studies in the early 1960’s showed it to be an adaptogen, and some of the outstanding performances of the Soviet athletes have been attributed to this drug. Dose: 1 gm powdered root for 3 months. Used as a substitute for ginseng. It is a common ingredient in “diet” pills.
Toxicity: It should be avoided in patients with high blood pressure.

SKULLCAP / (Baical Skullcap)

Botanical Name: Scutellaria laterifolia – American Skullcap
Active Constituents: (Root) Flavonoids. Wogonin and baicalin, a flavone.
Uses / Indications:

American Skullcap
This Native American herb is a small herbaceous plant with violet-blue-lavender flowers. The calyx at the base of the flower has a distinctive helmet shape. Tea infusion is useful as a sedative and for its antispasmodic effect. Useful sedative for sleep disorders and nerve and anxiety conditions.
Useful as an anti-inflammatory and to promote menses. Dose is 2 tablespoonfuls of tea infusion, one to two times a day or as needed. The Cherokee tribe used Skullcap to maintain healthy menstrual cycles. Used in Europe to treat epilepsy.

Note: the genus *Scutellaria* has over 300 species and derives its name from *scutella* (meaning a little dish or platter) for the “lid” of the fruiting calyx.

**Chinese Skullcap (Baical Skullcap)**

*Scutellaria baicalensis* Georgi (Chinese: *Huang Qin*)

This native of China is one of the most common Chinese medicinal herbs. The calyx at the base of the blue flower has a distinctive helmet shape. It is a small herbaceous plant of the mint family and one of the most important Chinese herbal plants known over the last two thousand years. It contains the bioactive ingredient wogonin in small amounts and baicalin, a flavone. Several different Skullcap species are used for their medicinal properties in China, India, Korea and Japan. It is part of several formulas in the Japanese traditional medicine, Kampo.

Useful as an anti-inflammatory, to improve the symptoms of hepatitis, for upper respiratory tract infections, as an anti-oxidant, as an anti-allergic bronchodilator. Useful for fevers, chest colds, hypertension, insomnia, dysentery, as an antipyretic, mild sedative, anti-allergic, anti-spasmodic, astringent, mild diuretic, for diarrhea, hepatitis and to lower blood pressure. Root is used to treat colitis. Used in combination with *Acacia Catechu* (Betelnut) it is an effective therapy for arthritis. Dose is 6-15 grams. Often combined with Coptis and Phellodendron for chest colds.

**Toxicity:** Skullcap increases menstrual flow so it should not be given to women in pregnancy, it may induce miscarriage.

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**SLIPPERY ELM**

**Botanical Name:** *Ulmus fulva*  
**Active Constituents:** (Root bark)  
**Uses / Indications:** This tree reaches 50 – 60 ft in height and is grown all over the United States, especially in the northeast. Flowers appear before leaves; flowering in April. Use for sore throat, acts as a stool softener, increases amount of mucus production, may also be useful in xerostomia. Has been surreptitiously used in abortion. Bark should be cut 1 – 5 in. to prevent use as an abortive agent. Used as a demulcent and emollient, and is useful in gastritis. Native Americans used bark to preserve fat. Was a good source of food during hard times. Use of warm infusion is good for throat irritation. It is a common ingredient in OTC throat lozenges.  
**Toxicity:** Can cause abortion.

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**SPEARMINT**

**Botanical Name:** *Mentha spicata*  
**Active Constituents:** Volatile oil in the flowering tops and leaves contains carvone. *M. spicata*, leaves are sessile. Peppermint, *M. piperita*, leaves are pedicle (stalk).  
**Uses / Indications:** Has a strong aromatic odor. Called *Spearmint* because of it spear shaped leaves. Used as a flavoring agent in toothpaste, useful
in hiccups, used in cough syrups and is a carminative. Mints are used in oral hygiene, cold remedies, toiletries, perfume, cigarettes, ice cream, drinks, and creme de menthe.

**Toxicity:** None known.

**ST. JOHN’S WORT**

**Botanical Name:** *Hypericum perforatum*

**Active Constituents:** Hypericum (has a weak MAO-like action)

**Uses / Indications:** A popular mood booster in Germany, where it is prescribed 8 times more than Prozac, it has recently grown in popularity in the United States. It is inexpensive, has limited side effects, and no undesirable effect on libido. Named after the medieval tradition of gathering herbs on St. John’s Day (June 24), it was used as a magical shield against evil spirits. Extracts of hypericum are more effective than placebos for moderate to severe depressive disorders. It is indicated for mild to moderate depression.

It inhibits retroviruses, decreasing healing time for burn and skin traumas. According to the *doctrine of signature*, the fluorescent red pigment exuded by the plant is similar to blood and for that reason is used as a remedy for wounds and scratches.

Popular in medieval times to ward off evil spirits and drive the devil out of people. Was also a defense against witchcraft, where its usefulness was obviously noted in cases of insanity and hypochondriacs.

**Toxicity:** Theoretically, delayed photosensitivity can occur, though at the recommended dose it is not reported. Avoid exposure to bright sunlight, because it acts like a weak MAO inhibitor. Avoid beer, wine and cheese. St. John’s Wort solution can stain clothes and skin.

**SWEET WORMWOOD**

**Botanical Name:** *Artemisia annua* (Chinese: Qinghao)

**Active Constituents:** Artemisinin.

**Uses / Indications:** Sweet Wormwood is an annual herb, 4 to 6 ft tall with feathery leaves. Whole plant is very fragrant. Useful for its antibiotic and anti-malarial properties and for fever. Artemisinin is a potent anti-malarial compound and Artemisinia has emerged as one of the most important anti-malarial medicines on the market. Possibly has an anticancer effect and may be useful in lupus. Tincture of dry herb is used. Authors are currently studying possible benefits in arthritis and lupus cases.

Note: Sweet Wormwood has a distinct medicinal profile and is *not to be confused with Wormwood*.

**Toxicity:** Restricted during pregnancy.

**SUTHERLANDIA** (Cancer Bush)

**Botanical Name:** *Sutherlandia frutescens*
Active Constituents: Contains the neurotransmitter GABA
Uses / Indications: This perennial herb with bright red flowers is restricted to South Africa, and believed to be part of the pea family. Used as an antiviral for fever and to soothe wounds. Useful for backache. GABA relieves anxiety. Useful in diabetes, is documented in the use of cancer and AIDS. It enhances the immune system, similar to Astragalus.
Toxicity: None known.

TANSY

Botanical Name: Tanacetum vulgare
Active Constituents: (Entire plant, properties are similar to Wormwood)
Uses / Indications: A common cottage plant of the British Isles, it is a member of the daisy family, popular in Eastern rituals, used after the Lent fast.
Useful in migraine headaches and insomnia. Tea made with flowers was used to bring on menstrual cycle and, perhaps, abortion. Used for insect bites, as an anti-inflammatory medicine, and to treat intestinal worms. For gout, leaf concoction is made and the affected joint is bathed in it.
One of the T. coccineum (Red pyrethrum), whose dried flower retains its insecticide properties indefinitely.
Toxicity: Caution, contains the toxic volatile oil thujone. Not recommended by the authors.

TEA TREE

Botanical Name: Melaleuca alternifolia
Active Constituents:
Uses / Indications: It is a native tree of South Wales Australia. The essential oil has a camphor-turpentine like smell. Useful for antibacterial effects, as an antifungal against candida infections, for acne, insect bites, superficial skin infections, wounds, bedsores, MRSA (Staphylococcus), for diseases of the gums and infections of the gums.
Toxicity: Recommended for external use only.

TONGKAT ALI (Ali’s Walking Stick)

Botanical Name: Eurycoma longifolia (Jack) (Indonesia: Pasak Bumi)
Active Constituents: (Root bark)
Uses / Indications: This traditional medicinal shrub tree is a native of Malaya, Indonesia. A bitter plant with compound leaves, its fruit is a small ovoid nut. It has been at the center of Jamu herbal remedies for health and beauty. Jamu is the ancient method of medicinal preparations from mixtures of herbs. E. longifolia is like ginseng and has a long history of use as an aphrodisiac. It increases serum testosterone levels. It is also used to treat anxiety and to reduce aggressive behavior.
Root bark is used for fever, indigestion, swelling, for healing wounds and ulcers and as an aphrodisiac. Useful for sore throat, as an antimicrobial, as an
an antihistamine, antipyretic (anti-malarial), tonic to increase muscle mass, for high blood pressure, for bleeding gums, for anti-cancer effects, and to relieve anxiety (acts as a mild Valium). It is used to treat erectile dysfunction and increase male hormones. Useful for hypertension, fatigue, and arthritis. Dose is 100 mg daily of the extract.

**Toxicity:** None known.

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**UZARA**

**Botanical Name:** *Xysmalobium undulatum* (Ishongwe, in Zulu)

**Active Constituents:**

**Uses / Indications:** A perennial herb, about 1 meter high, growing on the savannah grasslands of Southern Africa. Has leathery leaves, bitter tasting root. Useful for anti-diarrhea effect, for headaches, sinusitis, stomach cramps, and cough.

**Toxicity:** Should not be given to patients with heart conditions due to interference with their medications. Has an effect similar to digitalis.

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**VALERIAN**

**Botanical Name:** *Valerian officinalis*

**Active Constituents:** (Root)

**Uses / Indications:** Native to Western Asia and Europe, this large herbaceous plant has an unpleasant aroma in the root. Its name is derived from the Latin *valere*, meaning to be well or healthy. Easily grown in gardens. Cats are attracted to these plants.

Since ancient times, it has been used for nervous system disorders. The root extract is also used to flavor ice cream, soft drinks and at one time, was used in the perfume industry. Used since the time of Hippocrates (4th century bc), it regained popularity in the 10th century.

Valerian tincture was used for shell-shock during World War I (post traumatic stress syndrome). Dose is 20 drops of tincture, two to three times a day. In the 19th century, use was widespread for quiet, nervous females, to relieve nervousness and insomnia.

It has a sedative effect similar to the prescription drug Ativan, and is relatively safe compared to the side effects of common prescription tranquilizers. Valerian roots smell like old socks or leather. The Pied Piper of Hamelin was said to carry it. Used as a tonic and body cleanser, it is a “poor man’s remedy” for chest colds, colic, ill temper, and cuts and wounds. Dose is in the form of tea, 2 teaspoonfuls, two to three times per day.

**Toxicity:** Caution – interacts with alcohol and OTC anti-histamines.

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**WATERMELON**

**Botanical Name:** *Citrullus lanatus*

**Active Constituents:** (Seeds, pulp)

**Uses / Indications:** Watermelon seeds have medicinal properties similar to pumpkin seeds, though the watermelon seeds have a hard external coat. They are barely mentioned in Western literature, and their value has remained undefined.

In the authors’ experience, watermelon juice has a mild diuretic action. Effective for hypertension, without the undesirable side effects of other...
diuretics. Does not cause thirst, as seen in other diuretics. Contains potassium which is beneficial for hypertensive patients. Dose: 4 ounces of juice, one to two times a day, will treat any borderline hypertension.

Toxicity: None known.

**WILD YAM**

Botanical Name: *Dioscorea villosa*

Active Constituents: Fleshy roots called *tubers* contains diosgenin, a steroid-like compound. (Not to be confused with the yam sweet potato, *Ipomoea batatas*.)

Uses / Indications: Perennial climber, common in deep woods. Useful in spasmodic disorders of bowels and uterus. Has been used in the past as a principal starter material for the manufacture of contraceptive pills and other hormones, such as progesterone. It improves menopausal symptoms and dysmenorrhea. Used during early colonial times for biliary, colic, rheumatism, Crohn’s Disease and for morning sickness during pregnancy. Used as a mild diaphoretic, anti-inflammatory and for osteo-arthritis, pelvic pain, asthma, menstrual cramps and muscle spasms.

Wild Yam itself has no proven hormonal action and no hormone related disorders are known to be treatable with this plant alone. Its active compound, diosgenin, is converted in the laboratory to make progesterone. It is not converted in the human body. Dose is 2 teaspoons of dried root in hot water.

Toxicity: None known.

**WINTERGREEN**

Botanical Name: *Gautheria procumbens* (Tea Berry)

Active Constituents: (Leaves, fruit)

Uses / Indications: A small herbaceous creeping plant, with broad leaves, red berries and solitary white flowers. Has a characteristic, aromatic fragrance. Flowers grow below the leaves (compared to Pipsissewa, where flowers grow several inches higher on the stalk than the leaves).

Oil of wintergreen has been used for external application for bodyaches and pain. A source of methyl salicylates, which is the main constituent of wintergreen oil. A mild diuretic. Combined with beeswax and essential oils, it is an effective remedy for skin inflammation from poison ivy or insect bites. Tea made from leaves is good for bodyaches, flatulence and colic. Mixed with mineral or almond oil, it is an effective treatment of fibrositis, myalgias, neuralgia, and sciatica. Leaves can be collected and tea dried to make a concoction.

Toxicity: Oil of wintergreen is toxic if taken internally.

**WITCH HAZEL**

Botanical Name: *Hamamelis virginiana*

Active Constituents: (Bark, leaves) Contains a small quantities of safrole.

Uses / Indications: A small tree, 10 – 15 ft, flowering in the fall. It has been used as an ingredient in skin ointments, as a cosmetic base (anti-wrinkle), in eyedrops, for sore throat, and for muscular and body aches.
Leaves are used for liquid extracts as well as twigs. Early colonial settlers and Mohawk Indians used this for bruises and cuts, as a mild astringent to check bleeding. It is now available in OTC first aid medicines.

**Toxicity:** Only recommended for external use.

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**WORMSEED**

**Botanical Name:** *Chenopodium ambrosioides* (also, Jesuit Tea)

**Active Constituents:** (Seeds) Contains the essential oil ascaridol.

**Uses / Indications:** A perennial, 1 – 3 ft high weed, used to treat intestinal worms. The main use is as an anti-helmintic. Dose is 4 – 8 drops of oil in sugar. Rarely used today, due to its toxic effects and because it can cause abortion.

**Toxicity:** Has toxic effects, can cause abortion.

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**WORMWOOD**

**Botanical Name:** *Artemisia absinthium* (also, Absinthe)

**Active Constituents:** (Tops, leaves) Contains thujone

**Uses / Indications:** A perennial plant, with a strong aromatic fragrance. Apply externally for sprains. Anthelmintic tonic and bitter tonic for digestive disorders. Used in skin disorders, antimicrobial.

**Note:** Wormwood has a distinct medicinal profile and is not to be confused with Sweet Wormwood.

**Toxicity:** Highly toxic at high doses. Can cause seizures. Banned as an additive to alcoholic drinks.

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**YELLOW DOCK**

**Botanical Name:** *Rumex crispus*

**Active Constituents:** Contains laxative anthraquinones, emodin and chrysophanol. Oxalates.

**Uses / Indications:** Small leafy plant used in herbal remedies and in salads. Used in folk medicine as a blood purifier. Used as a laxative, diuretic, and for skin disorders such as psoriasis and eczema. For body cleanser: decoction made of 1/3 teaspoon in 4 ounces of hot water.

There are large quantities of oxalates used as a pot herb that are unpalatable for today’s stomachs.

**Toxicity:** Excessive use may cause urinary symptoms, nausea, and diarrhea, similar to oxalates in rhubarb and spinach.

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**YOHIMBE**
Botanical Name: *Pausinystalia johimbe*
Active Constituents: (Bark) Yohimbine acts as an alph adrenergic blocker.
Uses / Indications: A West African tree bark that contains the active compound yohimbine, which improves impotence, stimulating blood flow. Effective in urinary incontinance. Dose is ½ teaspoonful of crushed bark in a cup of hot water. The effective dose is 10 mg.
Toxicity: Side effects from higher doses include hypertensive crisis, palpitations, psychosis and severe panic attacks.

**HERBS FROM THE AMAZON**

**ABUTA**

Botanical Name: *Abuta grandifolia* (Mart.) Sandwith (also called Motelo Sanango)
Active Constituents: .
Uses / Indications: A small bush about 4 feet high, has a distinctive 3 veined leaf. Fruit is about one inch long with a fleshy coating. Used by indigenous tribes in South America as an aphrodisiac, and for toothache, fever, and rheumatism. Often used with other potent arrow poisons for hunting.
Toxicity: None known.

**ANGEL’S TRUMPET**

Botanical Name: *Brugmansia suaveolens* (H&B) Berchtold
Active Constituents: .
Uses / Indications: A large shrub, with long heart-shaped leaves. White and pink flowers are large, funnel-shaped. Used as a narcotic to relieve pain, tension and anxiety.
Toxicity: None known.

**AVOCADO**

Botanical Name: *Persea americana* (Alligator Pear)
Active Constituents: Minerals, vitamins
Uses / Indications: A medium sized tree with dark green pear-shaped fruit. Used as a contraceptive, for liver disease and as an aphrodisiac.
Toxicity: None known.

**BOLDO**

Botanical Name: *Peumus boldus* Mol., also called Boldea boldus (Mol.) Looser.
Active Constituents: (Leaves) Contains ascaridol.
Uses / Indications: A native tree of Chile. Leaves are similar to bay leaves, camphor-like smell. This popular South American herb is used as a
general tonic and has the following uses:

- Gall bladder and liver disease
- Digestive disorders
- Genito-urinary infections
- Urinary tract infections
- Gout
- Diuretic
- Sedative
- Antiparasitic
- Strong anti-oxidant
- Protects liver
- Anti-inflammatory (colitis)
- Anti-diabetic
- Anti-atherogenic
- Anti-tumor

**Toxicity:** None known.

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**BREADFRUIT**

**Botanical Name:** *Artocarpus altilis* (Park.) Fosb.

**Active Constituents:**

**Uses / Indications:** Large, distinct, finger-like leaves. Fruit round with spiny appearance. Indigenous to the Philippines and Southeast Asia. Used for rheumatism, gout, burns, diabetes, asthma and bronchitis.

**Toxicity:** None known.

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**CACAO**

**Botanical Name:** *Theobroma cacao* (Chocolate Tree)

**Active Constituents:** (Seeds, leaves) Catechins and polyphenols.

**Uses / Indications:** A small evergreen tree found throughout the tropics, from Amazon forests to the Philippines. Leaves are large and leathery, fruit is a large, thick-skinned capsule with edible seeds. Seeds are used to make chocolate powder and cocoa. *Theobroma* means food of the gods. It increases serotonin, a feel-good hormone transmitter in the brain, and is useful in depression. Has a high magnesium content. Useful as an antioxidant in the prevention of heart disease. Leaves are used as a diuretic and a heart tonic.
**CAMU CAMU**

**Botanical Name:** *Myrciaria dubia*

**Active Constituents:** (Fruit) High source of natural vitamin C and various amino acids.

**Uses / Indications:** A low growing bush from Peru and the Amazon forests. Medicinal fruit is the size of a grape with purple skin and yellow pulp. Used for viral infections such as shingles, viral conditions, high blood pressure, and colds.

**Toxicity:** None known.

**CAT’S CLAW**

**Other Names:** Uno de Gato (Peru)

**Botanical Name:** *Uncaria guiamensis* and *Uncaria tomentosa* (Willd. ex Roem & Shult) DC

**Active Constituents:** (Leaves and Stem Bark) Contains several alkaloids (oxindole) and quinic acid esters.

**Uses / Indications:** Native to the Central and South American rainforests. A climbing, woody vine reaching 100-120 ft in length, with simple leaves. A pair of curved spines on branches gives its characteristic name (*una* = claw, *gato* = cat).

Medicinal use was originally promoted in 1920 by a German naturalist. Tea made from the leaves has the following uses:

- Cancer
- Rheumatism
- Anti-inflammatory
- Antiviral
- Immune stimulant
- Contraceptive
- Asthma
- Diarrhea
- Wound care
- Arthritis (currently used for arthritis, although the authors have not seen significant results)
- AIDS
- Menstrual disorders
- Improves memory
- Improves blood conditions
- Improves recovery of white blood cells after chemotherapy
- Anti-aging
It inhibits the Nuclear Factor Kappa beta (which is involved in inflammation and cancer). It decreases prostaglandin E2 (decreasing symptoms of arthritis). **Role in Cancer:** enhances immune response in several cancers including breast cancer. There are two species. *U. guiamensis* is used for healing wounds.

**Toxicity:** A side effect is diarrhea. Not to be used in lupus or multiple sclerosis (MS) or during pregnancy.

### CATAUBA

**Botanical Name:** *Erthroxylum cатаuｂa*

**Active Constituents:** (Bark, root) Several different species are called cатаuｂa. The preferred ones are both from Brazil, *E. cатаuｂa* and *Trichilia catiguа*

**Uses / Indications:** A small Amazon tree with yellow and orange flowers. Useful as an aphrodisiac, helpful for insomnia, anxiety disorders, dementia and as a general tonic which increases circulation. Use an infusion, 1-2 cups a day.

**Toxicity:** None known.

### CHINESE THISTLE DAISY

**Botanical Name:** *Atractylodes alba*

**Active Constituents:** Root contains atractylon.

**Uses / Indications:** Used to stimulate appetite, as a diuretic, for fever, chills, and for morning sickness. Dose is 3-5 grams.

**Toxicity:** None known.

### DRAGON’S BLOOD

**Botanical Name:** *Croton lechleri* (Sangre de Drago)

**Active Constituents:** (Bark, resin)

**Uses / Indications:** Sap from the bark of this South American plant acts as a natural occlusive layer of skin with anti-microbial activity. Useful for wound care, respiratory viral infections, and for topical use with herpes and other viral infections. Relieves itching. Dose is 10-15 drops internal use. For external use, apply twice daily.

**Toxicity:** None known.

### FRANGIPANI

**Botanical Name:** *Plumeria alba*

**Active Constituents:** (Bark, leaves, flowers)

**Uses / Indications:** A small tree with leaves clustered at top of branches. Fragrant white and yellow flowers. Used for rheumatism and arthritis, cancer, diarrhea. It is antifungal and antibacterial. For muscle spasm, mix latex sap in coconut oil.

**Toxicity:** None known.
GRAVIOLA

**Botanical Name:** *Annona muricata* (Brazilian Paw Paw Tree)
**Active Constituents:** (Bark, roots, leaves)
**Uses / Indications:** An evergreen tree from the Amazon forest. Useful for upper respiratory infections. Bark is used to treat diabetes, as an antispasmodic and as a tonic. Possibly has an anti-cancer effect.
**Toxicity:** None known.

GUARANA

**Botanical Name:** *Paullinia cupana* (Mart.) Dulce
**Active Constituents:** (Seeds)
**Uses / Indications:** A South American woody vine. Seeds of this plant contain caffeine, used in soft drinks. Used for headache, fevers, fatigue and to relieve pain. Analgesic.
**Toxicity:** None known.

GUAVA

**Botanical Name:** *Psidium guajava*
**Active Constituents:** (Fruit, leaves) Fruit contains high levels of vitamins C and A.
**Uses / Indications:** A small shrub originally from Brazil, now widespread in tropical climates. Leaves are chewed for mouth sores. It is an effective treatment of dysentery (diarrhea). Dose: infusion of 1-3 cups for diarrhea.
**Toxicity:** None known.

JATOBA

**Botanical Name:** *Hymenaea courbaril*
**Active Constituents:** (Bark, resin, leaves)
**Uses / Indications:** Useful in bladder and prostate inflammation. Decongestant, upper respiratory inflammation. Anti-microbial. Dose: infusion, ½ cup one to three times a day.
**Toxicity:** None known.

LANTANA

**Botanical Name:** *Lantana camara*
**Active Constituents:** (Leaves)
**Uses / Indications:** A small, weedy bush with a beautiful cluster of red, pink, yellow and orange flowers. Crushed leaves give a distinct odor, and are
used for allergic skin conditions, cough, bronchitis and rheumatism.

**Toxicity:** None known.

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**MANACA**

**Botanical Name:** *Brunfelsia uniflora*

**Active Constituents:** (Root)

**Uses / Indications:** The root is useful in rheumatism and arthritis and for anti-inflammation.

**Toxicity:** None known.

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**MATICO**

**Botanical Name:** *Buddleja globosa* Hope

**Active Constituents:** (Leaves)

**Uses / Indications:** Native to Chile. Useful for digestion, for its anti-diarrhea effect, as a wound healer for open and bleeding wounds, as a mild diuretic, hypnotic and analgesic.

**Toxicity:** None known.

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**PATA DE VACA**

**Botanical Name:** *Bauhinia forficata*

**Active Constituents:** (Leaves)

**Uses / Indications:** Used in cases of diabetes, lowers cholesterol. Use infusion of 1 cup, two to three times a day, or 2 grams, two to three times a day.

**Toxicity:** None known.

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**SENSITIVE PLANT / MIMOSA**

**Botanical Name:** *Mimosa pudica*

**Active Constituents:** (Leaves)

**Uses / Indications:** A small herbaceous plant. Leaves quickly fold in response to touch or weather changes. Tea made from leaves acts as a contraceptive. Leaves are smoked to treat muscle spasm and backache.

**Toxicity:** None known.
SOUL VINE

Botanical Name: *Banisteriopsis caapi* (Spruce) Morton
Active Constituents: (Bark)
Uses / Indications: A hallucinogenic drink, *ayahuasca*, is made from the bark. An important ceremonial drink used by shamans.
Toxicity: None known.

STONEBREAKER

Botanical Name: *Phyllanthus niruri* (also called Chanca Piedra = stonebreaker)
Active Constituents: 
Uses / Indications: A small herbacious plant with tiny leaves, whole flowers and tiny fruit. Stimulates the immune system, increases bile production, and is useful for kidney stones and diseases of the gall bladder and for fever. Diuretic. Dose is 1-2 grams daily.
Toxicity: None known.

SUMA

Botanical Name: *Pfaffia paniculata*
Active Constituents: (Root)
Uses / Indications: This native vine of the Amazon forest is commonly available as an extract in US supermarkets. Also known as Brazilian Ginseng, and called *Para Todo*, meaning good for all things. Dried root is medicinal:

- Antiviral
- Antibacterial
- Treats symptoms of menopause
- General tonic
- Wound healing
- Aphrodisiac

Enhances energy in conditions with low blood pressure and fatigue. When used with other herbs, is helpful in fibromyalgia and chronic fatigue syndrome, and relieves pain related symptoms. Dose: maximum dose is 500-1000mg. Root extract in water: use ½ teaspoonful, two to three times a day.
Toxicity: Use cautiously for menopause symptoms and sexual dysfunction.
CHINESE HERBS

ASTRAGALUS

Chinese: Huang Qi  
Botanical Name: A. membranaceus (Fisch ex Link) Bunge  
Uses / Indications: Huang qi means yellow leader. It is a superior tonic. This popular Chinese herb stimulates the immune system. Authors have used it as adjunct to chemotherapy and for cancer and other immune disorders. Improves immune response in cancer patients. Improves diabetic kidney disease. Decreases cirrhosis complications. Other uses include:
  - Improves shortness of breath and palpitations
  - Diuretic effect
  - Combined with Codonopsis (Dang-Shen), is useful for heart conditions
  - Portal hypertension
  - Recurrent upper respiratory viral infections
  - Viral myocarditis
  - Allergic Rhinitis

Astragalus is a large genus of plants, known since ancient times, the word is derived from the Greek word for ankle bone. These “ankle bones” were used as dice (rattling seed pods were like the noise of rolling dice). Dose is 10-15 gm.  
Toxicity: None known.

BAIZHU

Botanical Name: Atractylodes macrocephala Koidz.  
Active Constituents: (Root)  
Uses / Indications: A perennila herbaceous plant with large, purple flowers. Thick root has warty appearance, is aromatic, and sweet to pungent. Useful for night sweats, diarrhea, urinary symptoms and nausea.  
Toxicity: None known.

CHAIHU (Chinese Thoroughwax)

Botanical Name: Bupleurum chinense DC  
Active Constituents: (Root)  
Uses / Indications: A perennial herb with yellow flowers. Used for common colds, fever, and irregular menses.
CHINESE CUCUMBER

Botanical Name: *Trichosanthes kirilowii*
Active Constituents: (Fruit pulp, skin, seeds, and roots)
Uses / Indications: Belongs to the cucumber family, a vine with softball size fruit. It is currently being used (compound Q) in the treatment of AIDS.
Toxicity: None known.

CHINESE PEONY

Chinese: Baishao
Botanical Name: *Paeonia lactiflora* Pall.
Active Constituents: (Roots, flowers)
Uses / Indications: A perennial herbaceous plant with thick roots, with large, reddish white flowers. Widely known as a women’s herb in Chinese folk medicine. Useful in PMS and has the following uses:
- Antispasmodic
- Astringent
- Diuretic
- Increases menstrual flow
- Night sweats
- Irregular menses
- Cough remedy is made from the flowers.

Four Things Soup is a widely popular women’s tonic in China for gynecological problems (such as irregular menses, anemia, cramps, giddiness). Other ingredients in this remedy include:
- Peony
  - *Angelica sinensis*, or Dong Quai root
  - *Rehmania glutinosa* (Gaertn.) Steud, called Chinese Foxglove, is a blood tonic similar to Osha.
  - *Ligusticum wallichii* Franchat, or Chuan Xiong
This herbal mixture is also used for its anti-cancer effects along with chemotherapy.
Toxicity: None known.
CHINESE PRIVET (Chinese Wax Tree)

Botanical Name: *Ligustrum lucidum* Ait.
Uses / Indications: An evergreen shrub or small tree with white flowers and black, single-seeded fruit. Useful for vertigo, dizziness, premature graying, and fatigue.
Toxicity: None know

CHINESE QUININE

Botanical Name: *Dichroa febrifuga*
Active Constituents: (Stem bark)
Uses / Indications: An evergreen shrub, flowering in June and August, it is one of the major Chinese herbs. Used as a laxative, for stomach cancer, and for cough and bronchitis in Tibetan medicine. Stem bark is an effective treatment for malaria and other febrile conditions.
Toxicity: None known.

CHINESE SALVIA

Botanical Name: *Salvia miltiorrhiza* Bunge
Active Constituents: Tanshinone I, tanshinone II, tanshinol
Uses / Indications: Member of the mint family, used to increase blood flow. Useful for angina pectoris, arthritis, and menstrual complaints.
Toxicity: None known.

COCKSCOMB

Botanical Name: *Celosia cristata* L.
Active Constituents: (Flowers)
Uses / Indications: A cultivated plant, with red velvety flowers in flattened spikes, like a cock’s crest. Urinary tract infections. For urinary tract infections and to treat bleeding, nose bleeds, coughing or vomiting with blood, uterine bleeding, and diarrhea.
Toxicity: None known.

DANG-SHEN

Botanical Name: *Codonopsis pilosula*
Active Constituents: (Root)
Uses / Indications: A popular Chinese herb root, used as an inexpensive substitute for ginseng for its tonic properties. It is used in combination with Ginkgo biloba (Bai Guo) to enhance memory and it may play a limited role in Alzheimer’s Disease. Combined with Astragalus and Chinese Licorice (G. uralensis) to treat asthma.
Toxicity: None known.

DONG QUAI (Dang Gui)

Botanical Name: Angelica sinensis
Active Constituents: Beta sitosterol, vitamin B12
Uses / Indications: Useful to ease menstrual pain and cramps, for insomnia, and for blood pressure.
Toxicity: None known.

EMODIN

Description: Emodin is a type of Anthraquinone (a large family of medicinal bioactive compounds.) Emodin is pressed from mold, lichens and other plants.
Uses / Indications: Has an effect on the protein tyrosine kinase and on the cell cycle. It blocks tumor associated events.
Toxicity: None known.

EVODIA FRUCTUS

Chinese: Fruit is called Wu Zhuyu
Botanical Name: E. rutaecarpa Juss.
Uses / Indications: A small tree (30 ft high) with small clusters of white flowers. Fruit is a dark reddish color. Useful in cancer, and for its anti-obesity and anti-inflammatory effects. Often mixed with ginger and costus root.
Toxicity: None known.

FORSYTHIA

Chinese: Lian qiao
Botanical Name: Forsythia suspensa
Active Constituents: (Fruit is medicinal, a dry capsule with winged seeds)
Uses / Indications: This flowering plant is native of the Far East and belongs to the olive family. Useful as an antimicrobial, antiparasitic, and anti-emetic, for nephritis and inflammation of the kidneys.
GANODERMA

Chinese: Ling Zhi, Reishi mushroom
Botanical Name: *Ganoderma lucidum*
Active Constituents: (Fruiting body)
Uses / Indications: Recorded in the earliest Chinese text on herbal medicine. Valuable for its use in virus infections and allergies, as a possible cancer deterrent, for its antiseptic properties and as an immune stimulant.
Toxicity: None known.

GYNOSTEMMA

Chinese: Jiaogulan
Botanical Name: *Gynostemma pentaphyllum*
Toxicity: None known.

HIBISCUS VITIFOLIUS

Botanical Name: *Hibiscus vitifolius*
Active Constituents: Bioflavonoid Gossypin
Uses / Indications: Bioflavonoid Gossypin in opium like alkaloid affecting neurotransmitters. Works both through GABAergic pathway and is cholinergic.
Toxicity: None known.

HOUTTUYNIA (Pinyin)

Botanical Name: *Houttuynia cordata*
Active Constituents: Quercitrin, reynoutrin
Uses / Indications: Useful as an antimicrobial, antiviral, and for pulmonary infections. Often combined with Platycodon root and Phragmitis root for lung abscess. It is similar to Lizard’s Tail of North America.
Toxicity: None known.
JAVA BRUCEA

Chinese: Yadanzi
Botanical Name: *Brucea javanica* (L.) Merr.
Active Constituents: (Seed)
Uses / Indications: A small shrubby tree, with small purple flowers in clusters. Seed is oval shaped, black brown with irregular marking with sharp tip. Found in China, India and Indonesia. Useful for diarrhea and for external application on warts.
Toxicity: None known.

JUJUBE (Chinese Date, *Unab*)

Chinese: Da Zao
Botanical Name: *Zizyphus jujuba* Mill.
Active Constituents: Phosphorous, iron, vitamin C
Uses / Indications: A small cultivated tree, flowers are greenish yellow. Fruit is a dark, reddish drupe with a single stone. Used for general fatigue, diarrhea, insomnia, and night sweats. Use as an expectorant mixed with honey for chest infections. Useful as a mild laxative and for viral infections, especially sore throats due to viral infection. It is the 'Unab' of Unani medicine, it is effective for diarrhea. It has been used in Oriental medicine as a blood cleanser. Dose is 5-7 fruits.
Toxicity: None known.

KUDZU

Botanical Name: *Pueraria lobata* (Willd.) Ohwi
Active Constituents: (Root)
Uses / Indications: A twining vine up to 30 ft high, root is a long cylinder up to 8 ft long. Purple and red flowers. Used for colds and virus symptoms, gastroenteritis, and to prevent alcohol addiction. Dose is 10-15 grams.
Toxicity: None known.

LINGZHI

Botanical Name: *Ganoderma lucidum*
Uses / Indications: An important Chinese medicinal mushroom. It is anti-ulcer, anti-tumor, lowers blood sugar, and lowers cholesterol and lipids. Dose is variable and empiric.
Toxicity: Seems to be safe when used with other traditional prescription drugs.
LYCIUM FRUIT

Chinese: Gouqizi (Goji)
Botanical Name: Related species Lycium chinense, L. barbarum are both called Goji Berries or Chinese Wolfberry.
Active Constituents: (Fruit and root bark) Contains betaine, a flavonoid-like alkaloid similar to that in Milk Thistle.
Uses / Indications: This important chinese medicinal plant has red berries which are dried like raisins. Useful for anti-aging effects and to increase male hormones (aphrodisiac). For diabetes, 30 grams of fruit daily is useful. Enhances immune response and immune function. Similar to Ganoderma and Astragalus. Improves circulation, eyesight and sexual function. Very high anti-oxidant content. Protects the liver. Use with Schizandra for liver disease. Useful for vertigo and cough. Dose is 20 berries once or twice daily.
Toxicity: None known.

MAGNOLIA

Chinese: Houpo
Botanical Name: Magnolia officinalis Rehd. et Wils.
Active Constituents: (Bark, all species have similar actions)
Uses / Indications: A large deciduous tree with conical fruit, and fragrant, creamy white flowers. Useful for indigestion, diarrhea, cough, as an expectorant, helpful in quitting smoking. The authors are currently studying the role of seeds and fruit cone in cancer.
Toxicity: None known.

MAHUANG

Botanical Name: Ephedra sinica Stapf (Chinese Ephedra)
Active Constituents: (Stem)
Uses / Indications: A small undershrub useful for cough, bronchial asthma, and common cold.

- Used in combination with licorice to treat asthma
- For fatigue and disability
- Lowers blood pressure in Chronic Fatigue Syndrome

Toxicity: Has been abused as a weight loss herb causing severe complications.

NELUMBA NUCIFERA
**Botanical Name:** *Nelumbo nucifera*

**Active Constituents:** Betulinic acid.

**Uses / Indications:** Betulinic acid has anti-inflammatory action.

**Toxicity:** None known.

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**ORANGE DAY LILY**

**Botanical Name:** *Hemerocallis fulva* L.

**Active Constituents:** (Root stock)

**Uses / Indications:** Used for urinary complaints, cystitis, and difficulty in urinating. Dose is 5-10 grams of root.

**Toxicity:** None known.

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**PERILLA**

**Chinese:** Zisu

**Botanical Name:** *Perilla frutescens* (L.) Britton

**Active Constituents:** (Fruit, leaves, stem)

**Uses / Indications:** An annual herb, with long stalk leaves, small, violet flowers and tart, pungent fruit. Useful for chest colds, food poisoning, vomiting, and cough.

**Toxicity:** None known.

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**REHMANIA**

**Chinese:** Di Huang (Yellow Earth)

**Botanical Name:** *Rehmania glutinosa* (Gaertn.)

**Uses / Indications:** A cultivated perennial herb with thick orange roots and reddish purple tubular flowers. An important Chinese herb that is part of many herbal formulas. Useful for high fever, bleeding, uterus, kidneys, lungs, weakness and night sweats. Dose is 10-20 grams. Protects the liver. Useful for low blood sugar, urinary symptoms, and as an antifungal. Used with licorice to treat liver disease (Hepatitis). Useful for night sweats.

**Toxicity:** None known.

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**SIBERIAN GINSENG**

**Botanical Name:** *Eleutherococcus senticosus*
**SILK TREE**

**Botanical Name:** *Albizia julibrissia* Durazz  
**Active Constituents:** (Flowers, bark)  
**Uses / Indications:** A small cultivated tree with beautiful pink, showy flowers. Completely naturalized in the eastern United States. Useful for anxiety and insomnia. Flowers are useful for weakness, insomnia and amnesia. Dose is 10-15 grams of root, or 3 grams of flower.  
**Toxicity:** None known.

**TABASHEER**

**Botanical Name:** Common species are: *Bambusa arundinacea, Gigantochloa apus.* (Vegetable Opal)  
**Active Constituents:** Tabasheer is a white translucent silica containing substance exuded from the joints of bamboo stems. (The dried sap of bamboo.)  
**Uses / Indications:** It restores calm and stimulates brain activity. It is aphrodisiac, useful for asthma and stroke rehabilitation, used to treat spasms, insomnia and as an antidote for certain poisons. It is a common ingredient (as a cooling agent) in Oriental medicine.  
**Toxicity:** None known.

**TONGUE WEED**

**Chinese:** Bai Hua She She Cao  
**Botanical Name:** *Oldenlandia diffusa (Hedyotis diffusa)*  
**Uses / Indications:** Used in stomach, colon, and lung cancer. Useful as a weak anti-microbial to activate immune system. Dose is 15-60 mg daily.  
**Toxicity:** None known.

**TREE OF HEAVEN**

**Chinese:** Chunpi  
**Botanical Name:** *Ailanthus altissima* (Mill) Swingle  
**Active Constituents:** (Bark, Entire plant)  
**Uses / Indications:** This small deciduous tree, cultivated but completely naturalized in the eastern United States, is one of the fastest growing plants in...
North America. Leaves, numerous, coarse toothed. Small, greenish white flowers in clusters. Useful for dysentery and for its anti-parasitic and anti-tumor effects. Dose is 4-10 grams of bark.

**Toxicity:** None known.

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**WHITE MULBERRY**

**Chinese:** Sangbaipi

**Botanical Name:** *Morus alba* L.

**Active Constituents:** (Root, bark, leaves, fruit)

**Uses / Indications:** A cultivated, deciduous tree with rough bark and greenish flowers in hanging catkins. Widely distributed throughout China, the India subcontinent and Southeast Asia. Roots and branches are useful for rheumatic arthritis and as an analgesic. Leaves are useful for sore eyes and cough and flu symptoms. Fruit is useful for weakness and anemia.

**Toxicity:** None known.

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**EAST INDIAN HERBS**

**AMALTAS (Indian laburnum)**

**Botanical Name:** *Cassia fistula*

**Active Constituents:** (Fruit, bark, dried leaves, outer coat of pods)

**Uses / Indications:** Pulp from the fruit is a well known laxative and body cleanser. Ancient Sanskrit texts refer to it as *Rajatarn* (Royal Tree) due to its beautiful clusters of yellow flowers. Fruit pulp is laxative. Seeds are emetic. Bark is useful for menstrual disorders. A combination of leaves and pulp is used as a laxative, and taken in a dose of 4-8 grams. Used externally for rheumatism, gouty arthritis and inflammation of the throat.

**Toxicity:** None known.

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**AMLA (Aonla)**

**Botanical Name:** *Emblica officinalis* Gaertn.

**Uses / Indications:** A deciduous tree in forests and hills, often cultivated. Useful as aphrodisiac, astringent, and diuretic. Used for anemia, jaundice, diabetes, and asthmatic bronchitis. It is part of the Ayurvedic combination formula *Chyavanprash*, a restoring tonic.

**Toxicity:** None known.
ASHOKA

Botanical Name: *Saraca indica* L.
Active Constituents: (Bark, leaves, flowers) Contains tannins (Catechols), glycosides.
Uses / Indications: A small, cultivated garden tree with beautiful orange and yellow, fragrant flowers. Pod is flat and leathery. From the Himalayas and the Bengal region. Used for fibroid tumors, dysentery, menorrhagia, bleeding hemorrhoids, colic, and as a sedative. Leaves are used as a blood purifier and an acne treatment. It stimulates the uterus, contractions are more frequent and prolonged without producing tonic contractions.[2](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn2) Flowers are used in dysentery, for colitis and diabetes.
Toxicity: None known.

ASHWAGANDHA

Botanical Name: *Withania somnifera* Dunal
Active Constituents: Contains alkaloids from the Nightshade family, Withaferin and Tropine.
Uses / Indications: A small shrub from the Himalayas. Used as an aphrodisiac, diuretic, abortifacient, tonic, and for rheumatism.
Toxicity: None known.

BACOPA MONNIERA

Botanical Name: *Bacopa monniera*
Active Constituents: (Whole plant)
Uses / Indications: A perennial creeping plant, it has thick leaves with twin white flowers. Used as a diuretic, for anxiety neurosis, asthma, and as an anti-anxiety agent.
Toxicity: None known.

BAEL (Bilva)

Botanical Name: *Aele marmelos* (L.) Corr.
Active Constituents: (Fruit, leaves, root)
Uses / Indications: A small to medium sized tree from India. Used as a laxative, for colitis, dysentery, as an astringent, and to protect gastric mucose. The root is part of the Ayurvedic formula *Dashmoola*.
Toxicity: None known.
BHRINGARAJ

Botanical Name: *Eclipta alba* (L.) Hassic
Uses / Indications: A small herbaceous plant, leaves usually without stalks, single white flowers. It is anti-inflammatory, bitter, astringent and anti-aging. Used for uterine hemorrhaging, protects the liver, increases bile flow, good for hair.
A popular Ayurvedic remedy for skin disorders includes Bhringaraj mixed with Sesame oil, Triphala, Arka (*Caltrops gigantea*) and Sariva.
Toxicity: None known.

BRAHMI (Gotu Kola)

Botanical Name: *Centella asiatica*
Active Constituents: Entire plant is medicinal, especially the leaves which contain the alkaloid brahmine.
Uses / Indications: An important ancient herb from India, it is a small creeping herbaceous plant. Flowers are blue or white with purple veins. It improves menorrhagia, has an effective anti-anxiety action, is adaptogenic, and has a liver protecting effect. A rejuvenating herb for the brain. It is being used for Alzheimer’s Disease.
Toxicity: None known.

CHIRATA

Botanical Name: *Swertia chirata* Buch Ham
Active Constituents: (Whole plant)
Uses / Indications: A small herbaceous plant found in higher elevations in the Himalayas and Kashmir. Used as a bitter tonic, for febrile conditions, for anorexia, skin disorders, and for its anti-parasitic effect.
Toxicity: None known.

COTTON ROOT (Kapas)

Botanical Name: *Gossypium herbaceum* L.
Active Constituents: Tea made from root is medicinal.
Uses / Indications: Used for anti-fertility and abortifacient effects, as a uterotonic, and for Dysmenorrhea and dysentery.
Toxicity: None known.

CUBEB
Botanical Name: *Cubeba officinalis* Miq. (also known as *Piper cubeba* Linn.)

Active Constituents: (Fruit)

Uses / Indications: Useful for genito-urinary infections, mouth ulcers, as a mild diuretic, for kidney stones, as an antimicrobial for cystitis and urethritis. It is anti-inflammatory and useful for inflammation of the throat, hoarseness of the voice, and bronchitis. Ancient Sanskrit literature called it *Katuka-Kola*, a pungent pepper. The word *Cubeb* is derived from writings of the Greek writer Aegineta. Dose is 1-3 grams.

Toxicity: None known.

**CUMIN (Jeera Safaid)**

Botanical Name: *Cuminum cyminum* Linn.

Active Constituents: (Seeds) Thymol

Uses / Indications: This medicinal spice of the parsley family was known to the ancient civilizations of Egypt, India and China. Cumin has been used for over 5,000 years as a spice and medicinal herb. It is the Kyminon in the ancient Greek text. A black variety is called *Carum Carvi*, or Zira Siyah. Used for chronic diarrhea, gastrointestinal disorders. Useful in Diabetes Mellitus (dose is ½ teaspoon, twice daily). Useful as a mild diuretic, astringent, to help digest food, decrease nausea, and for its anthelmintic, antibacterial and antifungal effects. Contains thymol, useful for antimicrobial effect, and for chest colds and fever. If smoked in a pipe, relieves hiccups. Used for a facial complex and for skin eczema. Dose is 1-2 grams.

Toxicity: Safe in pregnancy.

**DHAWAII (Shiranji Tree, Fire Flame Bush)**

Botanical Name: *Woodfordia fruticosa* (L.) Kurz

Active Constituents: (Flowers, leaves) Flavonoids.

Uses / Indications: Its antibacterial effect is similar to Amoxicillin and Ciprofloxacin. It is anti-fertility, anti-peptic ulcer and useful for urinary tract infections. Used to give a natural color to Ayurvedic medicine.

Toxicity: None known.

**DUDHI (Asthma Weed)**

Botanical Name: *Euphorbia hirta* L. (also, Snakeweeds)

Active Constituents: .

Uses / Indications: A small annual herbaceous plant, it is a tropical wasteland weed. Useful for anti-asthmatic, diuretic, laxative, and expectorant effects. Used in amoebic dysentery, skin diseases, and Athlete’s Foot. Used in combination with *Grindelia camporum* and *Lobelia inflata*. Milky latex is applied to wounds and inflammation.

Toxicity: None known.
FORSKOHLII

**Botanical Name:** *Coleus forskohlii*

**Active Constituents:** Forskolin (Root stock is medicinal. Leaves useful.)

**Uses / Indications:** An important and well known herb in the Indian Ayurvedic pharmacopoeia. A member of the mint family, 1 to 2 feet high, leaves are tear-shaped, pale purple flower. It is a potent bronchodilator. Relaxes smooth muscles. Dose is 50 mg to 100 mg once a day. Has a unique action and is used in the following conditions:

1. Glaucoma
2. Respiratory problems, bronchitis, asthma, allergies
3. Psoriasis, eczema
4. May help some cases of depression
5. Weight loss, by increasing fat metabolism
6. Immune enhancement
7. Colitis
8. Hypertension
9. Congestive heart failure
10. Anti-cancer
11. Lowers blood pressure

Useful in Metabolic X Syndrome when combined with American Ginseng and Gymnema. Prevents cancer from spreading. Decreases the tendency for blood clotting by its effect on platelets. Note: The bioactive forskolin increased CAMP production, which inhibits the release of histamine, thus lowering blood pressure. Dose is 250 mg, extract.

Cyclic AMP is the common pathway for many hormones and neurochemical messengers in the body. Thus forskolin markedly improves the functional response of many hormones.

**Cardiovascular Effects:** Lowers blood pressure, increases blood flow to brain, increases contraction of heart muscle, thus useful in heart failure. Decreases blood clotting tendency, working directly on platelets. Use with Hawthorne berries to treat hypertension (usually combined with Ginger and Turmeric).

**Bronchial Asthma:** Relaxes smooth muscle and prevents bronchospasms.

**Congestive Heart Failure:** Usually combined with 1) Astragalus, 2) Cratalgus (Hawthorne), and 3) American Ginseng.

**Toxicity:** Interferes with blood clotting, may interfere with blood thinners, and make blood even thinner. Avoid use with anticoagulants.
GAOZABAN

Botanical Name: *Onosma bracteatum* Wall
Active Constituents: (Flowers, leaves)
Uses / Indications: Known since ancient times in India and Persia. Useful as a mild diuretic, antipyretic, aphrodisiac, anti-inflammatory and as an expectorant.
Toxicity: None known.

GOKSHURA

Botanical Name: *Tribulis terrestris* Lin (Devil's Thorn)
Active Constituents: (Fruit, root)
Uses / Indications: Useful as an aphrodisiac, diuretic, anti-inflammatory for the urinary tract (cystitis), analgesic, and as an anti-microbial. Often mixed with *Punarnava* (*Boerhaavia diffusa*) for urinary or kidney diseases and kidney stones. Dose is 5 grams.
Toxicity: None known.

GREATER CARDAMOM

Botanical Name: *Amomum subulatum* Roxb.
Active Constituents: (Seed pods)
Toxicity: None known.

GUDUCHI (Giloy) Amrit

Botanical Name: *Tinospora cordifolia* Miers
Active Constituents: (Roots, stem)
Uses / Indications: A climbing shrub, stem is succulent with fleshy aerial roots, heart-shaped leaves, yellow green flowers, and red fruit is a drupe. Used as a diuretic, bitter tonic, for immune diseases such as AIDS, and for fevers. A decoction of leaves is used for gout. Leaves boiled in milk is used as an ointment for skin infections. Leaves mixed and beaten in honey used to treat skin ulcers. Powerful emetic. Water extract used for various skin disorders. Used as an adjuvant therapy for cancer patients.
Toxicity: None known.
GUGGAL

Botanical Name: *Commiphora mukul*, *Commiphora wightii* (Arn) Bhandari
Active Constituents: Tree yields a resin called guggulipid.
Uses / Indications: Used in sweetmeats in Rajasthan, India. Useful as an analgesic for gout, antispasmodic, expectorant in bronchitis, for anti-aging, and as an aphrodisiac. Gum resin used to treat Rheumatoid Arthritis. Effective for elevated cholesterol, increases white blood cells, helps heal bone fractures, and is useful in cancer treatment.
Toxicity: None known.

HARDH (Myrobalan)

Botanical Name: *Terminalia chebula* Retz (Called Haritaki and Indian Gallnut)
Active Constituents: (Fruit)
Uses / Indications: A small tree from the forests of Northern India. Used for digestive disorders, asthma, sore throat, hiccups, rejuvenation, as a laxative, and for anti-parasitic effects. A small dose is good for diarrhea and constipation. Used as a gargle for sore throats and is useful in healing wound. It is one of the three herbs in the famous Ayurvedic herb formula *Triphala* (Three Fruits).
Toxicity: None known.

JATAMANSHI (Indian Spikenard)

Botanical Name: *Nardostachys jatamansi* DC
Active Constituents: (Root stock)
Uses / Indications: Found at higher elevations in the Himalayas, Sikkim and Bhutan. Useful as a diuretic, antispasmodic, digestive aid, and sedative. Used in epilepsy, chorea, for palpitations, kidney stones, and insomnia. It has a sedative effect but increases mental awareness (much better than Valerian, which causes mental confusion at times.)
Toxicity: None known.

KALMEGH (East Indian Echinacea)

Botanical Name: *Andrographis paniculata*
Active Constituents: Leaves contain alkaloids, the main compound is Andrographolide (a diterpene lactone)
Uses / Indications: A small herb, common in India. Used for debility, malaria, anemia, and as a tonic. It is an immune stimulant, anti-parasitic, useful for viral cold symptoms and hepatitis. Called the *King of Bitters*, it is used in Unani medicine for anti-parasitic and anti-dysentery actions and for fevers. Dose is an infusion using ½ gram of dried leaves.
KATKI

**Botanical Name:** *Picrohiza kurroa* Royle ex Benth  
**Active Constituents:** (Root stock) Contains the glucoside Kutkin.  
**Uses / Indications:** A small herb in higher elevations of the Himalayas, from Kashmir to Sikkim. Used in cases of indigestion and diseases of the liver and spleen. Laxative.  
**Toxicity:** None known.

KHULANJAN (*Java galanga*)

**Botanical Name:** *Alpinia galanga* Willd.  
**Active Constituents:** (Underground stem and frail median)  
**Uses / Indications:** Found in Southeast Asia, the islands of Java and Sumatra and in southern India. The name *Alpinia* is for the 17th century Italian botanist P. Alpino. The word *galanga* is derived from the Arabic *khalanjan* (note also the Sanskrit *kulanja*) which itself is of Chinese origin. Used as a stimulant, to increase bronchial secretion and as an expectorant, and as an anti-microbial. Dose is ½ gram.  
**Toxicity:** None known.

KOKUM

**Botanical Name:** *Garcinia indica* L.  
**Active Constituents:** (Fruit)  
**Uses / Indications:** Frequent in evergreen forests in the Western Ghats of India. Fruit is used in Kokum Syrup.  
**Toxicity:** None known.

LONG BLACK PEPPER (*Pipali*)

**Botanical Name:** *Piper longum* L.  
**Active Constituents:** Contains the active compound piperine pippartin.  
**Uses / Indications:** An herbaceous climber with woody roots, grows in hot humid climates. From Assam and Bengal. Used in bronchitis, for coughs, colds and asthma. Useful for rheumatism, insomnia, epilepsy, as a sedative, analgesic, and as an expectorant.  
**Toxicity:** None known.
MADHUNASHINI (Gurmar)

**Botanical Name:** Gymnema sylvestre R. Br.

**Active Constituents:** (Leaves, roots)

**Uses / Indications:** A perennial climber, from Tamil Nadu and Uttar Pradesh. Anti-diabetic, astringent, useful for liver disease and asthma.

**Toxicity:** None known.

LOTUS

**Botanical Name:** Nelumbo nucifera

**Active Constituents:** Root stock contain betulnic acid, a triterpene.

**Uses / Indications:** Strong anti-inflammatory actions, useful in arthritis.

**Toxicity:** None known.

MALABAR NUT

**Botanical Name:** Adhatoda vasica Nees.

**Active Constituents:** (Whole plant)

**Uses / Indications:** Fresh juice from the leaves is mixed with honey and long pepper. All parts are medicinal. Used for cough, as an expectorant, and as an anti-spasmodic for bronchitis, COPD, and asthma. Dose is an infusion ½ to 1 ounce a day.

**Toxicity:** None known.

MALABAR TAMARIND

**Botanical Name:** Garcinia cambogia

**Active Constituents:** Contains Hydroxycitric Acid (HCA)

**Uses / Indications:** This sour, acidic tasting fruit is from Malabar in southern India and is often used in Indian cooking. Useful in weight loss, for migraines, insomnia, depression, and as an anti-allergy. It is an important medicinal plant for weight loss therapy.

**Toxicity:** None known.

NEEM

**Botanical Name:** Azadirachta indica Juss.

**Active Constituents:** (Bark, leaves, seeds, root – whole plant)
Uses / Indications: An evergreen tree with small white flowers. Helps in healing, is anti-malarial, anti-arthritis, and anti-diabetic. Neem is an important medicinal tree of the Indian continent, and recorded in early writings (Sushruta, Ayurvedic). It is often called “Village Pharmacy” due to its multiple medicinal uses for all parts of the body. According to Hakim M. Said, this tree was popular in early Arabic writings and was called Azad-daracht (in Hindi) for its resemblance to the Persian lilac Bakayan Melia azedarach. Neem has often been cultivated to keep insects away. It is an excellent insect repellent and the entire plant is medicinal. Dose of fluid extract of the root is 1 teaspoonful three times a day. Seed oil is effective in severe skin disorders. Neem is antimicrobial, and useful for mouth ulcers, toothache, gingivitis and for the treatment of loose teeth.

Toxicity: None known.

PALASHA

Botanical Name: Butea monosperma (Lam) Taub
Active Constituents: 
Uses / Indications: A small to medium sized deciduous tree, with an unusually crooked trunk with rough bark. Bright orange and red flowers are raceme. Useful for astringent, anti-parasitic, antifungal, anti-diarrhea, and anti-stress effects. Used with Albizia lebbeck, and Hibiscus rosa-sinensis as a treatment for Epilepsy.
Toxicity: None known.

ROSE PETAL (Gulcand)

Botanical Name: Rosa sp.
Active Constituents: (Rose buds and petals) Tannins
Uses / Indications: A rich source of vitamin C, twenty times more than an orange. Has an astringent action due to tannins. Rose leaves mixed with honey and sugar (gulcand) has been used as a mild laxative in Eastern pharmacopoeias. Avicenna recommended its use in pulmonary disorders. Gulcand. Red and pink rose petals preserved in cane sugar are an important part of several traditional systems of herbal medicine. It is especially common in Unani medicine. Used for: asthma, high blood pressure, bronchitis, diarrhea, cough, fluid retention, and insomnia.
Toxicity: None known.

SESAME SEEDS

Botanical Name: Sesamum indicum
Active Constituents:
Uses / Indications: The word sesame is derived from the Arabic simsim, and later from the ancient Egyptian semsent (listed in the Papyrus Ebers). Its country of origin is India, where it has been used for over 5,000 years. It is mainly used for cooking as a spice and as an oil. Used as an aphrodisiac.
Toxicity: None known.
SOMA (Homa)

**Botanical Name:** *Ephedra gerardiana* Wall.

**Active Constituents:**

**Uses / Indications:** This ancient plant of India is often called Soma of Vedas. In 1887, Dr. N. Nagai of Japan discovered ephedrine (from a similar species, *E. vulgaris*). According to M. Said, the Russian scientist T. V. Biektne (1891) described a popular Russian remedy for respiratory disorders which included Soma. Powdered leaves are used to treat asthma and are useful for rheumatism. Excellent for Chronic Fatigue Syndrome and general debility.

**Toxicity:** None known.

SUGAR CANE

**Botanical Name:** *Saccharum officinarum*

**Active Constituents:** (Stalk)

**Uses / Indications:** Sugar cane is a giant grass grown in India since ancient times, used for syrup which makes many medicinal herbs more palatable. Sugar cane remained unknown in the West for a long time, except as medicine. The word *candy* comes from *qandi* meaning crystallized sugar, and an island of Crete was called *Candia* because of early sugar cane cultivation. The word *Rum* (a sugar spirit) is derived from *rumbullion*, where *rheum* is Latin for stem and *borillon*, means boiling.

**Toxicity:** None known.

TULSI (Holy Basil)

**Botanical Name:** *Ocimum basilicum* Linn., *O. sanctum*

**Active Constituents:** (Leaves, seeds – whole plant)

**Uses / Indications:** Revered in India as a sacred healing herb, the entire plant is useful and has a sweet fragrance. Important Ayurvedic herb with the following properties: antibacterial, antispasmodic, antioxidant, antiviral, anti-tuberculosis, anti-allergy. It is immune enhancing and lowers blood glucose levels. Useful as an expectorant, diuretic, antimicrobial, and for urinary symptoms. Dose is 5 grams.

**Toxicity:** None known.

TURMERIC (INDIAN SAFFRON)

**Botanical Name:** *Curuma longa*

**Active Constituents:** Curcumin, zingiberin, and sesquiterpines which give its aroma.

**Uses / Indications:** Has an important position in the life of Indians due to its wide range of medicinal properties. Lowers cholesterol, useful in arthritis,
antiseptic, antibacterial and antifungal. Protects the liver. Useful in sprain and inflammatory joint conditions. Eyedrops useful for conjunctivitis. Regular use of turmeric has yielded a decrease in incidences of colon cancer and Alzheimer’s Disease. Effective in the treatment of colon polyps, colitis, and for the prevention of Alzheimer’s Disease. Has anti-cancer effects for skin, prostate, breast, lung and cervical cancers. Very effective remedy in osteoarthritis. For degenerative arthritis, take 600 mg twice daily or 1/8 teaspoon of turmeric spice with food. Dose is 3 – 4 gm, or a 1/4 teaspoon dose taken in divided portions throughout the day.

Turmeric never became popular in Europe (except Spain). Persians called it a form of saffron (crocus), kourkoum, from which comes the Spanish curcuma. The word turmeric is derived from the latin word terra merita, meaning deserving earth.

**Toxicity:** None known.

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**VIOLETS (Banafshah)**

**Botanical Name:** *Viola odorata* Linn  
**Active Constituents:** (Flowers, roots, leaves) Contains small quantities of salicylates, aspirin-like compounds.  
**Uses / Indications:** For centuries, violets have been used in Eastern medicine for centuries for chest congestion, sore throat, sinusitis, and to induce sweating to bring down fever. Mixed with vinegar, a liniment can be made to treat gout and arthritic conditions. Violet in an alcoholic decoction is good for the complexion in a facial treatment. Dose is 2-3 teaspoonfuls (in candied sugar) a day.

Useful as an expectorant, antipyretic (from salica), diuretic, and anti-inflammatory for upper respiratory tract inflammation. Leaves are used for bronchitis, asthma, throat inflammation and as an antiseptic. Violet is also useful for eczema and skin creams. Violets also probably have anti-cancer properties. Dose: Candied violet, 2 – 3 times per day.  
**Toxicity:** None known.

[8] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref2) Tonic contraction: a sustained muscle contraction, which can harm the baby if occurring during labor.  
[9] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref3) Sweetmeat: candy or sweet pastries.
Important Compound
Formulating an Herbal Prescription

While many herbal treatments and formulas exist, many times formulas need to be adjusted or even created for the immediate circumstances. Following is an outline on developing and writing herbal prescriptions.

The first consideration is what form will the herbal take?

- Liquid extract
- Powder extract (may be put in capsules)
- Ointment

When formulating a powder extract, consider the herbs in this manner:

1. **Chief Herbs**
   First determine the main herb for its medical action (antibiotic, antifungal, etc.) Use a combination of one to three chief herbs.

2. **Assistant / Supportive Herbs**
   Add herbs which help secondary and related problems. For example, for chest cold, sinus infection, and cough, thick mucus is an issue, consider herbs which can treat it.

3. **Conductive Herbs**
   Adding certain ingredients will make the herbal easier to swallow, digest and be overall more effective. The list below include just some examples. The art of herbal formula making definitely needs the supervision of a master herbalist.

   - **Black Pepper** increases absorption of other herbs
   - **Dandelion, Parsley** increase excretion
   - **Kelp** increases metabolism
   - **Marsh Mallow Root** an equalizer
   - **Licorice** as a natural sweetener, does wonders to help bitter herbs go down
   - **Candied Rose Petals, Violets, or Slippery Elm** has a smooth action
Let's consider a prescription for bronchitis or sinusitis:

<table>
<thead>
<tr>
<th>Chief Herbs</th>
<th>Mahuang Cardamom Platycodon Cinnamon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Herbs</td>
<td>Mullein Wild Cherry Bark Licorice</td>
</tr>
<tr>
<td>Supportive Herbs</td>
<td>Elecampane</td>
</tr>
<tr>
<td>Conductive Herbs</td>
<td>Ginger</td>
</tr>
</tbody>
</table>

Use any combination of one or two of the chief herbs, depending on whether you are using the Chinese or Indian system of herbal medicine.

**Shi Quan Da Bu Tang** (SQT)

("Ten Significant Tonic Decoction")
It was formulated by the ancient Chinese in 1200 AD (Song Dynasty). It contains ten herbs:

1. *Paeonia lactiflora*
2. *Rehmania glutinosa*
3. *Ligusticum walichii*
4. *Angelica sinensis*
5. *Glycyrrhiza uralensis*
6. *Astragalus*
7. *Cinnamomum cassia*
8. *Atractyloides macrocephala*
9. *Ginseng*
10. *Poria cocos*

Used for exhaustion, fatigue, weakness. It is extensively used by cancer patients to decrease the toxic effects of chemotherapy. It is the most potent biological response modifier (SRT). It tones the blood and strengthens Qi (vital energy) in cancer treatment.

**Triphala** *(Three Fruits)*

*(3 herbs, 3 thousand years, 3 billion people)*

The Ayurvedic system has a very important and perhaps one of the best known combination formulas, called *Triphala*. It is a colon cleanser and blood purifier, anti-oxidant and anti-stress. It consists simply of three fruits:

1. Harad – *Terminalia chebula* (Tibet's *King of Medicine*)
2. Bihara – *Terminalia bellirica*
3. Amla – *Embilica officinalis* (Rejuvenator)

These correspond to the Three Body Humors (Tridosha) system of Indian Ayurvedic medicine. These humors are:

1. **Vata** wind, nervous system  
2. **Pitta** fire, bile, metabolic function, digestive system  
3. **Kapha** water, mucous, anabolic function, body development

Triphala is used and an anti-stress agent, to promote digestion, for renewal of waste products and fat, as a detoxifier, as a natural remedy for constipation, for its anti-cancer effects and as an anti-oxidant. Useful for weight loss, to lower blood pressure, improve liver function, and to lower cholesterol.

**Essiac Tea**
Essiac tea is the most popular herbal mixture in North America for the treatment of cancer. It contains four simple herbs:

1. Burdock Root *Arctium lappa*
2. Sheep Sorrel *Acetosella vulgaris*
3. Slippery Elm *Ulmus fulva*
4. Rhubarb *Rheum palmatum*

In 1922, Rene Caisse (pronounced Reen Case), a surgical nurse in Ontario, Canada, treated a patient who had breast cancer using an herbal formula given to her by a Chippewa Indian woman healer. It apparently cured the breast cancer without surgery. Rene Caisse then promoted the formula (Essiac is the reverse of her name).[1](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1)

Caisse promoted her herbal cure as follows:

- For the Regression of Tumors
- To Prolong Life
- To Relieve Pain

In this way she did not claim she was curing cancer. In essence, it was a palliative cure for cancer in patients who were not far gone with cancer having destroyed many of their organs. She worked for free and was financially supported by friends. In a letter to Dr. Banting (the discoverer of insulin), she wrote, "I never had a hundred dollars I could call my own."

The Resperin formula is sold under the name Essiac. It contains four dried herbs which the user has to make into a tea. It was originally given as a tea and as an injection. Sheep Sorrel (*Acetosella vulgaris*) may be the active ingredient.

Essiac is considered harmless. In a small number of cases it slows the cancer, though in a majority of cases it is not effective. As a practicing oncologist, the senior author accepts this modality as a palliative case for cancer, because many cancer chemotherapy agents are selected for even 15% benefits. It should be an official part of other supportive or palliative therapies.

**Herbs For Specific Disorders**

**Abortifacient**

*Avoid Use of Any of These During Pregnancy:*

- TANSY
- MENTHA PULGIIUM
- HEDERA HELIX
• CYSTISUS SCOPARIUS
• ARTEMISA VULGARIS

**Anemia**
• URTICA
• DANDELION
• RUMEX ACETOSA

**Anti-Aging, Rejuvenating**
• POMEGRANATE
• GINKGO BILOBA
• TURMERIC dementia
• BILBERRY macular degeneration
• GARLIC
• GINSENG
• SCHIZANDRA BERRY improves liver
• ECHINACEA

**Antibacterial Herbs**
• GOLDENSEAL
• THYME
• LOMATIUM
• ECHINACEA
• BONESET antiviral
• BLACK CUMIN
• CINNAMON antiviral
• GARLIC stimulates immune system
• BASIL
• ASTRAGALUS increases interferons
• LICORICE
• CLOVE
• ALLSPICE
• SAGE
- ROSEMARY
- PAU D’ARCO, LAPACHO
- MYRRH (*Commiphora malmol*)
- TEA TREE OIL  anti-staphylococcus
- OIL OF OREGANO
- ELDERBERRY FLOWER  upper respiratory infection
- BEE PROPOLIS
- MUSTARD
- NEEM  antifungal, antiviral
- GRAPEFRUIT SEED OIL  antibacterial, for Traveler’s Diarrhea and flu
- BLESSED THISTLE
- TURMERIC
- CAT’S CLAW (Una de Gato)
- COPTIS
- ANDROGRAPHIS
- FORSYTHIA
- GENTIAN
- BOLDO – UTI

**Antibiotic or Anti-microbial Herbs**

- HOUTTUYNINE
- *ILICIS SINENS*
- ISATIDIS
- LONICERA
- OLDENLANKEN
- PAEONIA
- PHELLODENDRI
- PORTULACEA
- PULSATILLA
- SARGENTIDOSAL CANLIS
- SCROPHULOREA
- SCUTELLARE
- SAPHOREAE
- VIOLET
Anti-Inflammatory Herbs

- TURMERIC*
- LICORICE ROOT
- CAPSAICIN
- CLOVE EXTRACT
- POMEGRANATE

**Turmeric**  The active compound is *curcumin*, which has the remarkable anti-inflammatory effect. It directly effects the cell protein called Nuclear Factor Kappa Beta (NFKB). NFKB regulates the genes which bring about inflammatory changes by switching on and off the genes that produce inflammation. The KB Factor is an important trigger activator for degenerative disorders, arthritis, and cancer. There are several hundred genes which generate inflammatory responses in the body. Blocking the release of this (NFKB) factor can play an important role in inflammatory response.

Anxiety Disorders

- KAVA KAVA
- HOPS
- RAUVOLFIA
- CARDAMOM

Asthma

- CARDAMOM boiled in tea, with honey and licorice is an effective therapy for mild cases.
- COLEUS
- GRINDELIA (*G. camporum*)
- COLT’S FOOT  (with reservation)
- CATNIP
- COMFREY  (with reservation)
- ELECAMPANE
- GINKGO BILOBA
- EPHEDRA MA HUANG with LICORICE is an effective therapy.
- PLEURISY ROOT  (historical)
- SUNDEW  (historical)
- VASAKA  (Ayurvedic, adhato da zeylanica)

Benign Prostate Enlargement (BPH)
Treatment must last a minimum of 90 days to be effective.
- SAW PALMETTO (*Serenoa repens*) 300-450 mg daily
- POMEGRANATE
- NETTLE ROOT (*Urtica dioica*)
- PYGEUM (*Prunus africana*, African Tree) 100-200 mg daily
- PUMPKIN SEEDS (*Cucurbita pepo*)
- AFRICAN POTATO (*Hypoxis rooperi*)
- PLANTAGO SEED
- REHMANIA
- CHASTEBERRY (*Vitex agnus-castus*) lowers prolactin levels

**Bladder Cramps or Inflammation**

Use a combination of:
- Marsh Mallow Root
- Cramp Bark
- Goldenrod
- Fennel Seeds
- Tea made with Lemon and Barley water
- Other possible herbs (less common)
- Agrimony (*Agrimonia ssp.*)
- Birch (*Betula sp.*)
- Cleavers (*Galium aparine*)
- Corn Silk (*Zea mays*)
- Couch Grass (*Agropyon repens, Elytrigia repens*)
- Goldenseal
- Goldenrod
- Horehound
- Hydrangea (*H. arborescens*)
- Java Tea (*Orthosiphon stamineus*)
- Juniper Berries
- Lovage (*Levisticum officinale*)
- Parsley
- Pipsissewa
Shepherd’s Purse
Sweet Birch
Usnea (Usnea barbati)
OTC Phenazopyridine (AZO) Prodium has been used to relieve bladder spasms, but it has not antibacterial effect
Baking Soda. ½ tsp in 8 ounces of water can alkaninize urine and help urinary tract infections with herbal treatments such as with Bearberry.

For burning sensation:
- Cramp Bark
- Marsh Mallow Root
- Goldenrod

For bladder spasms:
- Fennel Seeds
- Hydrangea
- Meadow Sweet

Cancer

Herbs Which Protect Against Cancer Growth:
- AMERICAN PAW PAW
- BLACK SEED
- BLUEBERRY
- POMEGRANATE
- GARLIC
- TURMERIC
- PROPOLIS
- GREEN TEA

Herbs Used For Cancer
- SNAKE NEEDLE GRASS (Oldenlandia diffusa)
- SWEET WORMWOOD (Artemisia annua)
- PAU D’ARCO
- SAFFRON (Crocus sativus)
- LICORICE
- SUTHERLANDIA
- CAMPOTHECA ACUMINATA
- TAXUS BREVIFOLIA
- MAY APPLE (Podophyllum peltatum)
- CATHARANTHUS ROSEUS (Vinca rosea)
- PAW PAW
- CORDYCEPS SINENSIS
- POMEGRANATE
- ASTRAGALUS
- BAICAL SKULLCAP (Scutellaria baicalensis)
- FEVERFEW
- CAT’S CLAW
- APRICOT SEED
- EUROPEAN MISTLETOE (Viscus alba)
- GRAVIOLA (Brazilian Paw Paw)
- CALENDULA (Marigold)
- TURMERIC
- BLOODROOT (External use for some early cases of skin cancer.)

**Contraception**

- MARRUBIUM VULGARE
- URTICA DIOICA
- JUNIPERUS COMMUNIS

**Cystitis**
Use a combination of:

**Chief Herbs**

- CLEAVERS
- UVA URSI
- PARIA

**Assistant Herbs**

- PARSLEY ROOT
Supportive Herbs

- DANDELION

Conductive Herbs

- GINGER ROOT

**Dementia**

Herbs work by increasing blood flow to the brain, reducing cholesterol and stimulating the brain.

- GINKGO (Ginkgo biloba) 120-240 mg of extract
- GOTU KOLA (Centella asiatica)
- HUPERZINE (Huperzia serrata)
- LEMON BALM (Melissa officinal) acetylcholine activity in brain
- GINSENG
- ROSEMARY (Rosmarinus officinal)
- SAGE (Salvia officinalis)
- PERIWINKLE extract with vinpocetine
- SHISUAN (Lycorus radiata)
- MAELEAYA CORDATA
- HUANG LIAN (Coptis chinensis)
- YI YI GIU (Securinega suffuictiosa)
- BRAHMI
- ASHWAGANDHA

**Depression**

- ST. JOHN’S WORT
- GRIFFONIA SIMPLICIFOLIA 5-HTP
- VALERIAN
- DAMIANA tumera diffuser
- GINSENG
- BLACK COHOSH based on our clinic research
- SAFFRON
- PASSION FLOWER for anxiety, usually combined with
- YELLOW LADY’S SLIPPER
- INDIAN VALERIAN (Nordostachus jatsamanshi)
Diabetes Mellitus

- BILBERRY (Vaccinium myrtillus)
- GOAT’S RUE (Galega officinales)
- OLIVE LEAVES (Olea europaea)
- BITTER MELON (Momordica charantia)
- MULBERRY LEAVES (Morus nigra)
- GYMNEMA
- EUGENIA JAMBOFANA (Jamum)
- COCCINIA INDICA
- FENUGREEK (Trigonella foenum-graecum)
- CELERY (Apium graveolens)
- NEEM
- MUCUNA PRURIENS
- CUMIN
- CINNAMON
- CARDAMOM
- PTEROCARPUS MARSUPIUM
- SALACIA OBLONGA
- TINOSPORA CORDIFOLIA
- APOROSA LINDEYANA
- MYRTUS COMMUNIS
- TERMINALIA PALLEDE
- GENTIANA OLIVIERI
- POLYGONATIS ODORATI
- BAUHINIA FORFICATA

Diarrhea

The most important medicines are:

- POMEGRANATE JUICE / TEA taken 2 ounces every 1 to 2 hours. Use rind extract or the skin boiled as a tea.
- DOUBLE STRENGTH BLACK TEA tea made from Papya leaves.
- PERSIMMON
- GUAVA LEAVES excellent
• JAVA Plum (Jamoon)
• NUTMEG (Myristica fragrans) in milk
• BLACKBERRY LEAVES in tea
• CROW’S FOOT (Geranium)
• SUMAC tea
• PSICCIUM GUJAJAVA

AYURVEDIC HERBALS

ARJUNA (Terminalia arjuna) tea made from bark

BAEL (Aegle marmelos) unripe or ripe fruit

BAHERA (Bellaric myrblan, Terminalia beberica)

BISHOP’S WEED (Trachyspermum ammi) tincture use 2-3 drops

TREE OF HEAVEN (Ailanthus altissima, Chinese Suma) use root and stem bark

HIBISCUS SYRIACUS (Chun Jin Pi) use dried bark

GREEN TEA use concentrated extract

TRAVELER’S DIARRHEA

POMEGRANATE JUICE take 2 ounces every hour for 4 doses

GOLDENSEAL

Diuretic

PARSLEY contains myristicin and apiole, contains 3 times more vitamin C than oranges

DANDELION 200-500 mg daily, good for kidney stones; root and leaves; a more potent diuretic

GREEN TEA

LINDEN
YARROW

STINGING NETTLE

WATERMELON juice and seeds

CELERY

CLEAVERS diuretic

BUCHU diuretic

Eczema

HEAL ALL

CHICKWEED (*Stellaria medea*)

BIRCH (*Betula*)

FOXGLOVE

CELANDINE

PRIMROSE OIL

Fever

*ACORUS CALAMUS*

*FILIPENDULA ULMARA*

SALIX
VERBENA

Heartburn

GINGER
PAPAYA JUICE
CHAMOMILE TEA
CELER
FENNEL SEEDS
CARDAMOM

Herpes

LEMON BALM
LICORICE
PRICKLY PEAR JUICE

Hypertension

GARLIC
COLEUS FORSKOLI (acts as a calcium channel blocker) MINT FAMILY (Ayurvedic medicine contains forskolin which relaxes smooth muscles.
ABANA a complex ayurvedic medicine formula containing:

*Withania somnifera*

Indian Valerian

Boerhavia diffuser

*Tinospora cordifolia*

DANDELION mild diuretic

HAWTHORNE BERRIES *(Crataegus oxyacantha)* act as ACE inhibitor

PASSION FLOWER *(Passiflora incarnata)*

WATERMELON JUICE

PUMPKIN SEEDS

FENNEL SEEDS

YARROW

PARSLEY

HIBISCUS

SARSAPARILLA

**NATURAL DIURETICS**

POMEGRANATE JUICE

GARLIC

PAPAYA FRUIT especially papaya leaves, when boiled, have an anti-hypertension effect; high potassium content

OLIVE LEAVES contain oleuropein, which lowers blood pressure
Irritable Bowel Syndrome

FENNEL SEEDS  *most effective treatment* alone or mixed with cardamom

TURMERIC

PEPPERMINT

SLIPPERY ELM BARK powder

CHAMOMILE

MEADOW SWEET (*Filipendula ulmaria*)

ISPHAGHULA

PRIMROSE

Immune Enhancement

GANODERMA

ASTRALAGUS

LYCIUM FRUIT

SUTHERLANDIA

Kidney Stones
In conjunction with high fluid intake, avoid sugar. Eat a diet rich in green foliage, brown rice (more magnesium than calcium), bananas, oats, and high magnesium. Herbs include:

BEARBERRY

CLEAVERS

KHELLA (*Ammivisnagi*) anti-spasmodic, calcium channel blocker

SEVEN BARKS (*Hyrangea arborescens*)

STONE ROOT (*Collinsonia candidense*)

GRAVEL ROOT (*Eupatorium purpureum*)

CRAMP BARK (*Viburnum opulus*)

Liver Disease

TURMERIC

DONG YAO (*Swertia franchetiana*)

WU WEI ZI (*Schisandra chinensis*)

ANDROGRAPHIS PANNICULATA

HONEYSUCKLE (*Lonicera japonica*)

Menopause Symptoms

The following herbs are well known. Sometimes a combination of these will work, individual persons may respond better to different combinations. It is always best to learn some basics in the use of herbs from an experienced herbalist.
POMEGRANATE
ANGELICA / DONG QUAI (*Angelica sinesis*) there are some side effects; overall, less effective

BLACK COHOSH
improves hot flashes, night sweats
anti depressant
safe
does not contain estrogen, but acts through the central nervous system

CHASTEBERRY (*Vitex agnus-castus*)

DAMIANA

SARSAPARILLA

RED RASPBERRY LEAVES  for uterine cramps

SUMA

CHICKPEAS

FENUGREEK

WILD YAM  does not have estrogenic or progesteron properties

SOYBEAN PRODUCTS  ex. tofu

Metabolic Syndrome X
The following herbs are for weight loss, control of hypertension, and Diabetes:

COLEUS
FENUGREEK
GYMNEMA
AMERICAN GINSENG

**Muscle Cramps or Spasms**

CELERY SEED
ROMAN CHAMOMILE
ROSEMARY
GOLDENROD
SKULLCAP WILD YAM
SAW PALMETTO
YARROW

**Sleep – Herbs for Insomnia**

INDIAN VALERIAN (*Nardostachys jatamans*)
*TINOSPORA CORDIFOLIA*

PASSION FLOWER in combination with Lemon Balm
YELLOW LADY’S SLIPPER

VALERIAN with *Melissa officinalis*
CARDAMOM

JUJUBE (Da T'Sao)

KAVA KAVA

SKULLCAP

LAVENDER

CHAMOMILE

HOPS

HOELEN

CATNIP

LEMON BALM

CLARY

SAGE

VIOLETS

**BEST CHAI** in the authors’ opinion, the best tea (with boiled milk) includes one or more of the following:

- Indian Valerian
- Cardamom
- Hops
- Jujube
- Catnip
- Skullcap

**Rheumatoid Arthritis**
THUNDER GOD VINE (Tripterygium wilfordii Hook f.) is a vine-like plant growing in Southeast China. Its root stock is medicinal, but the flowers and leaves are toxic. Root extract contains more than 70 bioactive compounds.

HANG FANG CHI (Stephania tetrandra S. Moore)

GINKGO BILOBA (EGB)

Tonic Herbs

CORDYCEPS SINENSIS (Dong Chong Xia Cao) grown in the larvae of caterpillars.

GINSENG

ASHWAGANDA

Urinary Incontinence

HORSETAIL

ASTRAGALUS

BUTTERBUR (Petasites vulgaris) [a plant related to Colt’s Foot, grows in marshy places; formerly called plague root in Germany due to its use in medieval times]

SAW PALMETTO 160 mg twice daily

PYGEUM 50-100 mg twice daily

CORN SILK

CRANBERRY JUICE

BEARBERRY, UVA URSI

COUCH GRASS (Agropyra repens)
Urinary Tract Infection

GOLDENSEAL ROOT *(Hydrastis canadensis)* 1 tsp of dried herb in cup of hot water, two to three times a day, use in tincture or capsule

BEARBERRY UVA-URSI 2 tsp of herb cup of hot water; use with ½ tsp baking soda in 6 ounces of water to keep urine alkaline

BUCHU *(Barosma betulina)* diuretic and antiseptic

CORN SILK *(Zea mays)*

HORSETAIL *(Equisteum arvense)*

LICHEN *(Usnea)*

CRANBERRY 12 ounces of pure frozen juice, or freshly prepared juice daily; or 1 ½ ounce of berries daily.

Weight Loss – Obesity

- DANDELION leaves are diuretic, root is laxative
- FENNEL SEEDS
- KELP increases metabolism
- NETTLE
- GINSENG
- HOODIA GARDONI
- GYMNEMA
- *GARCINIA CAMBOGIA*
- GUAR GUM (use with caution)
- KOLA NUT
- BANABA LEAF
- PSYLLIUM natural fibrous laxative
- GUARANA

Wound Care
- TEA TREE OIL
- ARNICA for bruises, sprains and wounds
- CALENDULA
- NEEM LEAF
- TURMERIC
- LAVENDER TEA
- NETTLE TEA
- SELF HEAL
- BOSWELLIA SERRATA
- CAT’S CLAW
- SPEEDWELL
- YARROW
- SLIPPERY ELM
- ST. JOHN’S WORT
- FEVERFEW
- BLUE VERVAIN
- CHAMOMILE
- GOLDENSEAL
- MULLEIN

[9] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) Essiac Tea is manufactured by Resperin Corp. in Canada. A number of variations are available, such as one recipe by Flor Essence, which includes Red Clover, Kelp, Blessed Thistle, and Watercress.

[10] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) History of Medicinal Plants
Ancients
- Phenicians
- Chaldeans
- Indians
- Chinese
- Egyptians

Classic
- Greeks
- Aristotle
- Theophrastus
- Romans
- Pliny

Renaissance
- Leonardo Da Vinci
- Otto Brunfels - *History of Plants*
- Andreas Caesalpinus, Padue - *De Plantis*

Early Modern
- John Ray - *Methodus Plantarum*, 1682
- Tournefort - *Elements de Botanique*, 1694
- Carl von Linne - *Spec. Plantarum*, 1753
MEDICAL BOTANY
of
the EASTERN UNITED STATES
China has had an ancient flora since the end of the Mezozoic era during the Quarternary period and not subject to continental ice sheets. It has a relic of ancient flora. Out of 7 ancient families, China has 6 of them. China has over 30,000 species of higher plants, 2,500 species of ferns, 2,200 bryophytes and 250 gemnosperm (out of 850 worldwide.)
Botanic Materia Medica of the United States & of Appalachia

Example of the Naturalization of a Medicinal Plant

Inula helenium

Asiatic Origin
Mediterranean

Europe

Irish Monastery

English

Emigrants
**EASTERN UNITED STATES**

- **Naturalization**

**EVOLUTION OF AMERICAN MEDICAL BOTANY**

**First Book:** Benjamin Franklin, reprint of Dr. Short's *Medical Botany*, Addendum of Bartram's work.


- David Johann Schoepf
- Christopher Sauer
- John Bartram
- Barton William C. P.
- Barton Smith
- John W. Shecut (*Flora Carolinaensis*)
- Jacob Bigelow
- Rafinesque C. S.
- Griffith R. E.
- Johnson Lawrence
- Millspaugh, Charles
- Thomsonian, Samuel and his followers
- Eclecticism, Wooster Beach
- Scudder
- John King
- Uri Lloyd
Natural products have been a major source of archaebotanical medicine since the dawn of human civilization. Archaebotanical studies show medicinal plants were known to early hominoid species about 60,000 years ago. The caprification of the fig can be traced to early Phoenicians, as noted by Herodotus and artificial fertilization of palms are evidence in early stone relief from the temple of Assurbanipal in ancient Egypt.[12]

What is 'Medicine'?

The word *medicine* conveys a different concept to different people. Not all disease has an obvious cause, many were considered the result of spirits or of dead or evil animals. Medicine men were *herb men*, preachers, *conjurers*, wise men and community leaders (Sitting Bull and Geronimo were medicine men.)

There is no literal translation of the word *medicine* in most Native American cultures. Perhaps the best is "mysterious or inexplicable". For example, whiskey was referred to as "medicine water" but its effects were not fully understood. A gun was referred to as "medicine iron," a horse as "medicine dog."[13]
A plant species which is commonly used for the treatment or prevention of illness of disease or to somehow modulate, in a beneficial way, the final outcome (as such alternative).

Many of the uses of medicinal plants are the fruit and labor of generations of all mankind in folk medicines and different cultures across the world. Over thousands of years, ancient civilizations have skillfully used wild plants and weeded out useful ones from the poisonous types. The beneficial knowledge of medicinal plants is a collective intellectual heritage which belongs to the entirety of mankind. Where medicinal plants become so established in daily life, so essential an ingredient of daily life, nutrition and food, they become the *Spice of Life*.

Many medicinal spices such as cinnamon, cardamom, peppermint, turmeric and fennel seeds may have their origins as culinary spices which improved the taste, aroma, and other qualities of food. Later, they became so ingrained in different cultures with a dual identity of their culinary and medicinal use, which truly makes them the spices of life. These medicinal spices have high antioxidant values, vitamins, and medicinal properties with few side effects. From an evolutionary medicine point of view, they have reached their highest hierarchy.

**How Knowledge of Medicinal Plants Was Acquired**

Native American medicine men observed animals who used certain plants, especially black bears digging roots of plants to eat. Wise men learned from wild animals.

The Asian Indian plant Snake Root (*Rauvolfia serpentina*, family Apocynaceae) was used in India as an antidote for snakebites, and also to treat anxiety and insanity. An ancient Indian legend about the mongoose[14](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn3) (*Herpestes nyula*) claims that when the mongoose is ready for combat, he feeds on the root of the Snake root plant which protects him from the snake's venom. It was the great Dutch tropical botanist Rumphius (George Eberhard Rumpf, 1628 - 1702, author of *Herbarium Amboinense*) who pointed out the above legend of the mongoose feeding on Snake Root to fight the cobra.

Wild animals are known to use plants for the treatment of their illnesses[15](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn4). An example of this is the capuchin monkey rubbing its fur with millipedes which contain the insecticide benzoquinones. Domestic cats eat houseplants and grass to make themselves sick and get rid of body poisons. American buffalo (bison) will visit salt licks to obtain calcium, sodium and other minerals. Sodium is a vital ingredient in the antidote for toxic plants eaten by animals, a common example is the use of salt to decrease saponins and other bitter principles from onions to bitter melons.

[12](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) Useful knowledge of medicinal plants goes back to the earliest of recorded history, to the Shanidar Cave in the Zagros mountains in Kurdish Iraq, where Ralph and Solecki (1951-1961) excavated Neanderthal burial sites that date back 60,000 years. The analysis of soil around the bones showed plant pollen, which included yarrow, groundsel, grape, hyacinth, thistle, echinacea, senecio, althea and achillea, suggests that early Neanderthal man used these plants. (Solecki, 1975.) However doubts have been raised due to coincidental remains of rodents in large colonies around these burials, that the pollen grains may have been stored in their burrows by these rodents. J.D. Somma. "The Shanidar IV, flower burial," Archeology Journal, Cambridge, 9:127-129:1999.

[13](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref2) Hershman, M. J. "American Indian
A mongoose is a small, agile weasel-like carnivore that lives on rats and snakes. It is renowned for killing the poisonous cobra due to its quick movements and thick, protective hair. It was sacred in ancient Egypt because it kept the alligator population under control by digging up and eating their eggs. The Victorian author Rudyard Kipling, had a character Ricki-Tick who was also a mongoose. Recent research shows that the mongoose does not have protein receptors for the neurotoxin present in cobra venom, which protects the mongoose from a cobra bite.

However many biologists differ in their views and regard animax savants as mere romanticism (R. Saplosky).
Rats often consume clay after eating highly toxic plants (clay chelates poison). Eating clay is common among crows who eat anything and are thus continuously exposed to plant toxins. Eating clay is also common as pica in pregnant women, to protect the developing fetus from dietary mutagens and other poisons.[16] Chimps have been known to eat the pith of *Vermonia amygdalia* in response to parasitic infestation. Often the whole leaf is swallowed, some of the parasites, such as *Oesophagostomum*, get caught by trichomes. The elephants in western Kenya are known to dig extinct volcanoes to get soft rock to obtain mineral salts.
Primatologists Wranghan and Nishida found chimpanzees in Tanzania eating leaves from the shrub Aspilia. This plant has no nutritional value but contains thiarubrine-A, a reddish oil which is a potent toxin against nematodes which infest these chimpanzees. These plant leaves are chewed by local tribes for the treatment of stomachache, indicating that animals are users of medicinal plants, thus an example of zoopharmacognosy.

The Brazilian wooly spider monkey uses large amounts of the legume Enterolobium contotisiliquum. Steroid stigmasterol (a progesterone precursor) helps bring on mating season. (K. Strier)

What is the Golden Ratio between the known plant species and its medicinal flora? The ratio is 20 - 35% of any regional flora has at least some medicinal value. It is estimated there are about 400,000 species of higher vascular plants. (Govaerts 2001[20])

According to one report, there are at least 119 chemical substances derived from 90 plant species which are important drugs currently in use. (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn8)

Plants produce bioactive materials as a defense mechanism, against predatory animals, fungus and other microbes. Plants in the wild are more exposed to environmental hazards and fungi and they produce anti-microbes to fight them. These chemicals vary if the plant is alive or dead and vary according to the season and the soil. For example, a cultivated rose loses its immunity and is more prone to develop fungal rot and mold than one in the wild.

Welcome Back to Eden

Traditional medicinal plants will become an integral part of future health care. According to the estimate by the World Health Organization (WHO), 80% of the world's inhabitants rely mainly on traditional medicine for their health care. Twenty five percent of all prescriptions contain natural products and more than 250 medicinal plants are a botanic source of many medicines and remedies available over-the-counter.

There is a resurgence of interest in phytomedicine, which is due to the failure of conventional medicine to treat simple every day health problems. Examples are menopause symptoms. Use of phytomedicine is due to a relative lack of side effects, an holistic approach, respect for individualism and self help.

The natural products from medicinal plants have been used for health, nutrition and survival of the human species. The earliest record can be
seen in Mesopotamia, approximately 4,500 years ago. They were commonly using mustard, myrrh, licorice, cinnamon and opium from papaver somniferum. All of these medicinal plants have valid use, even today. The next record is of Papyrus Eber’s (1500 BC), which contained many of the medicinal plants mentioned early, but also others such as Pomegranate, Indian Valerian, black pepper, etc.

**Origin of Medical Botany**

Theophrastus (300 BC) described about 500 species of plants. Pliny (78 AD) mentions 1,000 species and by the time of Linneaus, over 10,000. At present 250 - 400,000 of higher plants angiosperms. It is estimated that about 35 - 60,000 medicinal plant species have been used in different cultures. For example, in China, 5,000 of 35,000 species growing there are used as drugs in Chinese Traditional Medicine. In India, 7,000 species are of medical use.

[16] Pica, an evolutionary adaptation - Amjad, 2005.
[23] "Use of synthetic estrogen leads to an increase in cancer rate and blood clots, arthritis, common cold, even sore throat, etc.
[24] According to David Bramwell, 421,968 species, and to Rafael Govaerts, 422,127 species (World Checklist of Seed Plants, World Resources Inst.)
<table>
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<tr>
<td>South Africa</td>
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</table>
Many plants have served as models for the next generation of drugs. For example, *Khellin* from *Ammi visnaga* is used in Egyptian folk medicien for the treatment of asthma. This leads to a development of chromolyn (which stabilizes membranes to prevent the release of substances causing bronchospasm.) Further studies lead to the development of *amiodarone*, a useful medicine for the control of heart rate.

The common blood pressure medicine *Verapamil* was obtained from the common structure shared by *Papaverine*. *Galega officinalis* has been used in folk medicine for the treatment of diabetes mellitus. Its active material galegine provided the basis for a synthesis of metformin as anti-diabetic drug.

Medicinal plants provide a novel mechanism of actions for bioactive materials which remain a most important source of new medicinal compounds. Examples of medicinal compounds are well-known:

- Foxglove (*Digitatis purpurea*) for heart failure
- Indian Snake Root (*Rauvolfia serpentina*) and Salicylic acid for Willow bark.

Recent medicines derived from plants are:

- *Vincristine* from *Catharanthus roseus* (Madagascar Periwinkle)
- *Etoposide* from the *Podophyllum* species (Mayapple), taxol from *Taxus brevifolia*.
- Steroidal compounds from (*Dioscorea* spp) and *Sisal* (Agave spp)
- *Artemisinin* from *Artemisia annua* (Sweet Wormwood) and *Forskolin* from *Coleus forskoli*.

**Role of Medicinal Plants From Antiquity to Present**  The knowledge of botany was fundamental to the development and rise of ancient agrarian societies around the Nile, Indus and Yellow Rivers. Ancient cultures of China, India and Egypt had their origins successful growing of crops and agriculture. So was the acquiring knowledge of medicinal plant for health and sickness. Even the mummified human remains show, birch fungus being used as a possible treatment for intestinal parasites. Study of the The Ice Man's mummified remains from the Austrian Alps gives us a better glimpse at what ancient life was like thousands of years ago. One of his valuable possessions was a "medicine kit," two walnut sized lumps of birch fungus (*Pitoporus betulinus*) used as laxative and antibiotic.

Early use of medicinal plants rose with religious ceremonies at ancient Temples in India and Egypt. It was associated with the use of myrrh and Frankincense was valued as an antibiotic and for gaining attention. Knowledge of herbal medicine remains closely associated with rituals, and even during medieval times cottage gardens associated with churches were a source of medicinal plants. The word *office* originated as a storage room for medicinal plants. The word was the source of the botanic nomenclature *officinalis* (which indicates that this plant was specifically grown and stored for medicinal use.)

Botany serves as a universal science which was known in and shared by the earliest civilizations on earth. Similarly, even the most primitive aborigines have their own materia medica of indigenous plants for survival. Thus Botany is the science of Life (medicinal aspect) and Existence (agricultural aspect) because to live you have to exist first.
Theophrasti Eresii
De Historia Plantarum
Libri Decem.
Græce & Latine.
In quibus
Textum Græcum varium Lectionibus, emendationibus, hujuscumque supplementis, Latinam gæÆ versionem nova interpretatione ad margines totum Opus absolutionis rem Notitium Commen
tarii, nec rariorem Plantarum usibus illustrabur.
JOANNES RODAEVS a STAPEL.
The earliest account of botany in the west goes to Aristotle, born in 384 BC. After several years of study in Asia Minor settled the Peripatos (Peripatos is colonade where school existed) or Lyceum (Public grove of Apollo where peripatos was located.) Only fragments of his botanic works are known (Treatise on plants, De Plantis I & II) even they are disputed.

The most important influential botanic work belongs to Theophrastus (371 - 286 BC) a student of Plato and Aristotle called the father of Botany. He embraced Aristotle's philosophy in all areas of science and philosophy.
Most important were *De historia Plantarum* (Periphyton historia), *Growth of Plants* (Periphyton aition.) The first consists of 10 books, 9 have come down to us. He separated monocotyledon and dicotyledons (unbranched stem and parallel leaf venation,) distinction between annual and perennial, Petiolate and sessile leaves and the position of corolla with ovary. Woody plants are distinguished from herbaceous, land plants from aquatics, and sources of turpentine from plants with leaves having needles.

Later Pliny, born AD 23, died in eruption of Vesuvius AD 79, in his *Historia Naturalis*, out of the 37 books, 16 deal with plants and their products (there are over 1000 plants mentioned.)

A contemporary of Pliny is the famous Dioscorides of Anazarbus, Cicilia (Modern day Turkey.) His materia medica has reference to 600 plants. His important *De Materia Medica* is survived by the Juliana Codex, or Anician Codex. Nothing is known about him except that he was a Greek surgeon for the Roman emperor.

The Dioscorides’ herbal had profound influence but his knowledge was related to plants endemic in Western Europe. Almost all of the writings of Galen of Pergamos (born AD 130) were influenced by Dioscorides. Later, Pietro Andrea Mattioli (physician botanist) in 1544, published commentaries on Dioscorides, which greatly influenced the botanic knowledge of that time. Mattioli’s work was copied by Theodore Zwinger, (1658 - 1724) *Theatrum Botanicum*, a Swiss botanist physician, which was source of Christopher Sauer II (1721 - 1784, herbal medicine 1777), *The Compendious Herbal*; Kurzgefasstes Krauter Buch. It was published in installments during the mid 18th century in the United States.

Preservation & Collection of Medicinal Plants[27] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1)

**Preparation of Plants** Natural products vary in their concentration according to their harvest season, climate, soil, method of drying and variance within the species. Proper collection, drying and storage are important and influence the medicinal properties of the final extract. The following sections describe these processes in more detail.

**Collection of Medicinal Plants Roots:**

These should be collected during the fall, after the leaves have fallen (contrastingly, barks should be collected in the early spring.) In general, roots collected late in the season are better.

**Leaves - Flowers**

These should be collected before maturation of the fruit and development of the see. Flowers are collected preferably at the time of pollination.

**Seeds and fruit**

Should be collected when they are ripe and mature.

Active medicinal compounds are at their maximum during early flowering, alkaloids, etc. diminish with aging, they have higher contents of active principles if flowers are still closed.

**Bark**

As a rule, collect the bark when shrubs or trees are "in sap", which is very late winter or early spring.
**Bulbs**
Collect bulbs in the fall or winter when the plant is dormant.

**Herbs**
Herbs should be collected when the flowers are in full bloom, which is when they have the largest bulk and also the largest amount of medicinal principles.

**Drying Methods**
Dry the vegetable material by air drying it out of direct sunlight. Try to speed the drying process to prevent molds. This can be done by using artificially heated or circulated air and/or dehumidifiers. Cutting the large roots in slabs, or crosswise, helps in drying.

**Caution:** excessive heat will destroy medicinal compounds.

**Simple**
Cut the large roots, it helps in drying. Some roots (burdock and pokeberry are usually cut lengthwise) may be sliced into slabs, while others, such as elecampane, are sliced crosswise.

After drying, they should be stored in a dry place to prevent mold.

**Microwave**

**Dehumidifiers**

Air drying under normal circumstances with any available equipment is helpful in small quantities.

Drying the whole herb can be done hanging them on lines upside-down. Drying herbs can be done with special equipment, whose designs are available (U.S. Dept. Agriculture Farmer's Bulletin 1231). Drying can be done either with natural air temperature and movement, or artificially heated with circulated air.

**Storage**
After drying, they should be stored in a dry place to prevent mold.

**Notes From Porcher** Confederate States of America, Surgeon General's Office:

**General Directions for Collecting and Drying**
Directions for Collecting

All leaves, flowers and herbs should be preferably gathered in clear, dry weather, in the morning, after the dew is exhaled.

The roots of medicinal plants, although more advantageously gathered at certain periods, to be hereafter specified, do not lose their medicinal virtues in consequence of being dug in midsummer. It is probable that most of those imported are thus collected by savages or ignorant persons, when the plant is in full leaf, it being then more easily recognized.

Plants, Annual  Should be gathered at the time when their vegetation is most vigorous, which is generally from the time they begin to flower until their leaves begin to change.

Plants, Biennial  Should in most instances be gathered in the second season of their growth, and about the time of flowering.

Roots of Annuals  Are to be gathered just before the time of flowering.

Roots of Biennials  Are to be gathered after the vegetation of the first year has ceased.

Roots of Perennials  Are to gathered in the spring, before vegetation has commenced. Roots should be washed, and the smaller fibres, unless they are the part employed, should be then separated from the body of the root, which, when of any considerable size, is to be cut in slices previous to being dried.

Bulbs  Are to be gathered after the new bulb is perfected, and before it has begun to vegetate, which is at the time the leaves decay. Those which are to be preserved fresh should be buried in dry sand.

Barks  Whether of the root, trunk or branches, should be gathered in the autumn, or early in the spring. The dead epidermis or outer bark, and the decayed parts should be removed. Of some trees (as the elm), the inner bark only is preserved.

Leaves  Are to be gathered after their full development, before the fading of the flowers. The leaves of biennials do not attain their perfect qualities until the second year.

Flowers  Should in general be gathered at the time of their expansion, before or immediately after they have fully opened: some--as the Rosa Gallica--while in bud.

Aromatic Herbs  Are to gathered when in flower.
Stalks and Twigs. Should be collected in autumn.

Seeds. Should be collected at the period of their full maturity.

**Directions for Drying**

Medicinal products of the vegetable kingdom (as plants, roots, etc.) should be dried as rapidly as is consistent with their perfect preservation, but not subjected to extreme heat.

Those collected in the warm months and during dry weather may, except in a few instances, be dried by their spontaneous evaporation, in a well ventilated apartment: some – as roots and barks – may be exposed to the direct rays of the sun.

In spring and autumn, and in damp, foggy or rainy weather, a drying house should be resorted to; the temperature to range from 70° to 100° F. There should be an aperture above for the escape of warm, moist air.

**Fibrous Roots.** May be dried in the sun, or at a heat of from 65° to 80° F. in the drying room.

**Fleshy Roots.** Should be cut in transverse slices, not exceeding half an inch in length, and during the drying process should be stirred several times to prevent their moulding.

**Bulbs.** Must have the coarse outer membrane peeled off. In other respects they are to be treated like fleshy roots.

**Barks, Woods and Twigs.** Readily dry, in thin layers, in the open air.

**Leaves.** After separation from the stalks, should be strewed loosely over hurdle frames, and their position changed twice a day, until they become dry. When very succulent, they require more care to prevent their discoloration. For thin dry leaves, the heat need not exceed 70° F.: for the succulent, it may gradually be raised to 100° F.

**Annual Plants and Tops.** If not too juicy, these may be tied loosely in small bundles, and strung on lines stretched across the drying room.

**Flowers.** Must be dried carefully and rapidly, so as to preserve their color. They should be spread loosely on the hurdles, and turned several times by stirring. When flowers or leaves owe their virtues to volatile oils, greater care is necessary.

A carefully pressed specimen of the stem, leaf and flower of each medicinal substance collected, whether it be bark, root or herb, should be obtained and forwarded with each collection, for the purpose of aiding in its identification.

The time when collected, and the mode of drying of each character of article, should always be stated.
Methods of Preparation[28] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn2)

To prepare botanic extracts several methods are utilized. Here, brief description are provided on an introductory level.[29] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn3)

Ointments – Liniments

Liniments
These preparations are designed only for external use. They are usually thicker than water, but always liquid at body temperature.

Ointments (Unguents)

These are preparations made with fatty substances, usually lard (Indians used bear grease.) Use of ointments and liniments, for medicinal herbs is as follows:

1. Use beeswax, melt it in a double boiler or a can (or jar) in a pan of water.
2. When wax is melted, add appropriate mixture of herb and oil (use any of these: olive oil, or almond oil, grape seed, or jojoba oil). Mix the medicinal herb extract, essential oil or just simply herb flowers, leaves, simmer boil in oil medium.
3. Borax added helps as emulsifier.
4. To improve shelf life, add Grapefruit Seed Extract, vitamin E or other similar preservatives.

Decoctions
This involves boiling for short periods, 20 minutes or very low heat, resulting in more active principles being extracted from the medicinal roots, etc. This is the simplest method of obtaining medicinal compounds. A tea-like liquid is made (proper word is Tissane).

1. Ceramic or stainless steel container, appropriate amount of herb part is used (bark, leaves or dried flowers). The exact amount varies with the medicinal plant used. Normally, one to two teaspoonfuls of macerated leaves, or 1 teaspoonful of macerated bark is sufficient to obtain a 4-6 oz. cup of Herbal tea.
2. Water should be boiled on low, low heat for 20 minutes (average time). Some potent ingredients require only 5 minutes of heating (especially dried flowering parts).
3. Strain the liquid and sweeten to individual taste.
4. Decoction can be stored in refrigerator up to 72 hours and used as directed.
Syrups

This is a solution of medicinal substances in glycerin, made by rubbing them together in a mortar. The word syrup is derived from the Persian *sheer-aab*, meaning "sweet water".

1. Ceramic or stainless container, juice or decoction of medicinal herb is mixed with cane sugar, 1 part juice to 1 ½ parts sugar.
2. Gently heat to a simmer.
3. After cooling, store in appropriate container, this can be stored in the cupboard for 6 months or more.
4. Very useful with flowers and other rare medicinal plants.

Infusions

Infusions are partial solutions of medicinal herbs in water. They are made with both hot and cold water. In hot infusions, the active ingredients are preferred, however, if the active principle is friable or could be damaged by heating, hot (or even cold water) is poured on the medicinal herb and it is left to soak for some time.

When the heating is done between 60º and 90º Fahrenheit, the process is called maceration. When heated between 90º and 100º, the process is called digestion. Other special methods are percolation and dialysis.

Medicinal infusions are made hot or cold. The use of vinegar, apple cider or white wine vinegar is desirable. Heat the water for 5 minutes, just to a boil and add one teaspoonful of leaves (dried flowers) or bark to one cup and wait till it cools down. It can be sweetened to individual taste. For delicate flowers and essential oil, cold water infusions may be used, especially when left over night.

Tinctures

Tinctures are biological response modifiers. They are solutions of medicinal substances in alcohol or diluted alcohol. Their effects cannot be measured by the standard, crude techniques geared for pure crystalline compound analysis which are presently available in the pharmaceutical industry. Tinctures contain complex biological molecules with their unique structures, liquids and binding by known and unknown accessory molecules, such as saponin, which facilitates interaction with protein receptors, biomembranes and ion channels.

[27] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) Extracted from *Medical Botany of the Eastern United States*.
[28] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref2) Extracted from *Medical Botany of the Eastern United States*.
[29] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref3) For more details see Bitters, Amjad, 2003.
1. Ground dried leaves or roots are crushed and used in a ratio of 1:4

2. Using vodka, 80% proof, container is kept in a warm place. Shake at least once a day.

3. If herb has been macerated, it is even not necessary.

4. Products (root, leaves, bark)

5. Kept for a minimum of 10 days and the residue is separated from the liquid and stored separately, longer stay increases tannin content (which if intended.)

6. Glycerin and vinegar can be substituted in most but not all cases. Glycerin extracts are better than water but less effective than alcohol.

7. Rose water or cardamom can be added to the alcohol tincture if there is a problem with stomach intolerance.
Tinctures in the pharmacological sense of the term are solutions of medicinal substances in alcohol, prepared by maceration, digestion or percolation.

The word *tincture* is derived from the Latin word *tinctura*, which means “tinted” or “colored”, referring to herbal extracts made with alcohol. Typically, a tincture is made with diluted alcohol (25% alcohol, 50% proof) with macerated medicinal roots and bark and kept for 2 weeks, with the mixture frequently shaken. In some cases, white wine vinegar and glycerin are used to prepare the tincture.

Alcohol has been used to extract non-water soluble ingredients from medicinal plants. Also volatile (essential oils) components are captured using alcohol which would evaporate if heated. These volatile compounds would also not be available in a solid extract form of medicine. Tinctures also prolong the shelf life of a concoction which, in the case of infusions in water, the concoction may only last a few days. Alcoholic tinctures usually last 6 months and can last up to 5 years.

When a tincture contains volatile compounds, it is called *spirits*. After mixing it with water, tinctures contain both water soluble and non-water soluble components. Normally, in the human body, fat soluble (or *non-water soluble*) compounds are facilitated for their absorption through the intestinal mucose with the presence of *saponins*.

**Alcohol**

A 95% alcohol content functions as a preservative. Author uses 80 proof herb vodka for all its medicinal purposes. Alcohol is hydrophilic, it attracts water. Grain spirits are made from corn, wheat rye, barley, and are useful in tincturing. Grape spirit is used in perfumery. Remember, proof is always twice the alcohol percentage number, for example: “95% alcohol” means 95% alcohol and 5% water, 190 proof.

In some of herbal medicine (Angelica), the best extraction is by alcohol. Volatile (essential oils) components are captured which would otherwise evaporate when heated. These volatile compounds would also not be available in a solid extract form of medicine. Correct choice of ethanol varies in different herbs and their contents. A Swiss study used 55 % alcohol, usually 40- 60 alcohol (say, 80- 100 proof vodka) is best for most purposes. The following guidelines are useful:

- For Water Soluble Constituents: mucilage, tannins, flavonoids, few saponin, 25%, 50 proof.
- For Essential Oil alkaloids and saponin: 45% - 60%, 100- 120 proof.
- For Resins and Oleoresin: 90% alcohol, 180 proof.

The herbal medicine should be in a dry state and properly bruise, sliced or pulverized.[30](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1) Tinctures in the pharmacological sense of the term are solutions of medicinal substances in alcohol, prepared by maceration, digestion or percolation. They should be kept in well-closed bottles and full, at low temperatures.[31](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn2)

**Dose:** It should be titrated with the lowest dose and built up, rather than a wineglass of this and that. Start with 5-10 drops to ¼ - ⅛ tspful, 2-4 times a day. The Edinburgh College suggests ingestion be continued usually for seven days. In the United States, it is extended to two weeks.

For making “strong” tinctures (I call them extracts using 50 – 60% herb parts and 40 – 50% alcohol 80 –100 proof, even 190 proof can be used and diluted 50% water, vodka 80 % does well for most cases. In the author’s opinion, the tincture of a whole herbal plant is much more potent and has
Some tinctures deteriorate before the time required for the fermentation process. Examples include:

- Senna
- Columbo
- Digitalis
- Aloe
- Rhubarb
- Henbane
- Hops
- Cinnamon

[30](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) The US Pharmacopoeia directs the specific gravity of alcohol 0.835 (London) and Edinburgh (0.838) and Dublin (0.84).

[31](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref2) *Am. J. Pharmacy* 20:47.
KIMIA (Old name of Egypt) → ALKIMIA$^{32}$ → XIRION

ALCHEMY ↔ ALKIMIA$^{32}$ → CHEMISTRY

IKSAR (Arabic) → Essence Powder Of Ancients (Geber) → Razi Avicenna → Base Metal: Gold.

Spirit or Essence Of Medicine ↔ ELIXIR 16$^{th}$ Century Paracelsus
Advantages of Tinctures:

1. Contain full spectrum of bioactive materials from the medicinal plants.
2. Capture volatile essential oils.
3. There are many bioactive compounds which are not water-soluble, tinctures make these bio-available.
4. Prolonged shelf-life: tinctures kept properly can last up to 5 years or so.
5. Dosage can be fine tuned, by dilution or volume.
6. Apple cider vinegar and glycerin can be used instead of alcohol, but these tinctures are usually weaker.

Suggestion:
Roots, bark, etc. are kept in diluted alcohol (25% alcohol, 50% proof) for 2 weeks, under the conditions for maceration (60-90 degrees F). The mixture is shaken frequently.

Juice Tinctures
Tinctures prepared by adding alcohol to expressed juice are well known, especially with narcotic plants, such as Belladonna and Hyoscyamus. In these cases, the leaves should be taken, if it is a biennial, those exclusively of the second year’s growth, and collected when the plant is in full flower. The juice is kept for sedimentation for 1 day and the alcohol is added 1 part to 4 parts juice. During preparation, the tincture should be frequently shaken. Medicine is given in small doses, the effect of alcohol is minimal.

Follow these guidelines:
- Keep for 2 weeks
- Keep stirring or shaking bottle
- After 2 weeks, filter alcohol content
- Store in a cool place
- Seal tincture bottles tightly
- Label properly and mark and date
- Keep in sunlight with spirits or flower extracts, otherwise, out of sunlight.
Originally, herbal compounds were made with alcohol, called *aqua vitae* (Water of Life). Later, brandy was used for making herbal compounds (the Dutch word *Brandy* = burnt wine). Alcohol distilled from fermented grains was called *whiskey* (Gaelic “water of life”). Swiss physician and chemist Paracelsus used alcohol for making herbal compounds, that is the start of Elixirs, some of which have persisted up to now (Elixir paregoric). Some persons may be allergic to grain alcohol, alcohol from grapes would be ideal.

For more details on making tinctures, the reader is referred to the monograph *Bitters* by the Senior Author.

**Other Forms Medicine**

(Powders (Pulveres) Medicinal compounds which do not have a bitter or disagreeable taste are given as powders (Slippery Elm Bark). They are pulverized mechanically or with a mortar and pestle. Medicinal compounds which contain volatile acids should be used when freshly made.

Some powders can be converted into pills (pilules) with the addition of some dry inert powder such as bread crumbs or powdered edible gum (such as gum arabic, accacia, etc.) Heavy powders can be mixed with confection of rose petals (traditional classic methods) or raisins.

**Steam Distillation** – Used for essential oils.

**Creosote** Creosote is a substance obtained from wood tar, especially from beech wood tar. It is a colorless oleoginous liquid, with a burning taste and a penetrating odor like that of smoked meat. It is soluble in alcohol and vinegar. It has a remarkable property of preserving meat, hence its name (*creosote* is Greek for “to save flesh”).

In small doses it is an astringent and a styptic, employed in bleeding from stomach and lung. When applied externally, it is helpful in the treatment of non-healing wounds and ulcers.

Dose is 1-2 drops for internal use, and 6 drops for external use.

**Troche or Lozenges** These are small dry solid masses, made of powders with sugar and mucilage (gum tragacanth) which tends to hold together in the mouth, allowing the solid to dissolve slowly.

**Confections** These are of two kinds: one is *Conserves*, where the medicinal compound is combined with refined sugar, and the other type is *Electuary*, which is a dry powder mixed usually with honey.

**Chartae** These medicinal compounds are made for external application. They are a mixture of medicinal substances, such as mustard on paper.

**Mixtures** This is the preparation of an insoluble substance in water, traditionally combined with gum Arabic, sugar or egg yolk. When the mixture has an oily appearance, it is called and emulsion.

**Medicated Waters (Hydrosols)** These are waters distilled from medicinal plants, containing volatile or other gaseous substances, for example, rose water and lavender water.

**Solutions** Solutions are of non-volatile substances, which are completely soluble in water-based medicines.
**Cerates** These are made of oil mixed with wax (beeswax, spermaceti, or resin) along with medicinal substances. They have a harder consistency than ointment and do not melt when applied to the skin.

**Plasters** These are usually powdered medicinal compounds mixed with olive oil, etc. and spread on linen or muslin for external application on the skin. A mustard plaster is an example.

**Cataplasms (Poultices)** These are soft, moist substances for external use, usually for the treatment of boils, etc.

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[32] (file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftnref1) Biddle, John B. *Materia Medica*, Lindsay and Blakistan, Philadelphia, 1878.

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**The Science of Apothecary**

(file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1)

*Lotions-Potions-Alchemy of Herbalism*
Dosology

Posology: The Science of Dose (dosology from the Greek meaning how much of F. Posologie).

A Phytotherapist has to determine the amount and frequency of medicinal dosages.
British Pharmacopoeia (as well Pharmaceutical codex) gives a dosage range instead of a fixed dose.

1. X plant root 1-4 ml in a tincture 1/5 tincture one to three times daily.
2. Frequency of dosage
3. Age of patient
4. Condition of the patient

Herbal products are usually slowly absorbed and metabolized and thus have longer lasting effects, thus [they may be needed] only once a day compared to the active ingredient in a tablet. Some tinctures may have to be taken 2-3 times or even more or local applications whether sore throat or skin condition frequent applications are needed. Bitters are given ½ to 1 hour before meals to stimulate appetite or effect pancreas to help pour digestive enzymes. Fennel seeds given 1 h before meals help suppress appetite and weight loss, but given after meals, they help digest, but no effect on weight loss. Diuretic given in the early morning is more active. Strong medicine with high dose alkaloids should be given smallest dose and titrated up if needed.

Galenic Art
The art of combining simple drugs is much more complex, requiring thorough knowledge of medicinal herb's total content. High dose tannins can interfere with other active medicinal compounds. Expectorants can be achieved by reflex action of saponins on stomach by direct action on respiratory epithelial lining and stimulating ciliary transport of mucus. Amount of active ingredient in a tincture is difficult to ascertain due to many variables.

Standardization of Herbs

When an herbal product is standardized, the active ingredient is checked by HPLC to assure each batch has the same standardized standardization give some confidence and guaranteed constituents. Pros and cons discussed.[34]

(file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn1)

Tinctures
Tinctures are made to have a longer shelf life of herbal concoction as well a some herbs are extracted in a medium of alcohol and water. Author uses following:
- Ground dried leaves or roots are crushed and used in a ratio of 1:4
- Using vodka, 80% proof, container is kept in a warm place. Shake at least once a day.
- If herb has been macerated, it is even not necessary.
- Products (root, leaves, bark)
  - Kept for a minimum of 10 days and the residue is separated from the liquid and stored separately, longer stay increases tannin content (which if intended.)
  - Glycerine and vinegar can be substituted in most but not all cases. Glycerine extracts are better than water but less effective than alcohol.
  - Rose water or cardamom can be added to the alcohol tincture if there is a problem with stomach intolerance.

Alcohol
Ninety-five percent alcohol is preservative. Alcohol is hydrophilic, it attracts water. Gram spirits are made from corn, wheat rye, barley, and are useful in tincturing. Grape spirit is used in perfumery.

Alcohol is hydrophilic and can be made up to 96% or 192°, proof is always twice the alcohol percentage number.
95% alcohol is 95% alcohol and 5% water, 190 proof.
50% alcohol is 50% alcohol and 50% water, 100 proof.
Wine is 10-15% alcohol, 20-30 proof.

**How Much Alcohol To Use For Extraction**

Alcohol has been a successful herbal preparation. In some of herbal medicine (Angelica), the best extraction is by alcohol. Correct choice of ethanol varies in different herbs and their contents. A Swiss study used 55% alcohol, usually 40-60 alcohol is best (so 80-100 proof vodka would be best for most purposes).

The following guidelines are used for different:

- For Water Soluble Constituents: mucilage, tannins, flavonoids, few saponin, 25%, 50 proof.
- For Essential Oil alkaloids and saponin: 45% - 60%, 100-120 proof.
- For Resins and Oleoresin: 90% alcohol, 180 proof.

**Extraction and Analysis of Medicinal Herbs**

Natural products vary in their concentration according to their harvest season, climate, soil, method of drying and variance within the species. Proper collection, drying and storage are important and influence the medicinal properties of the final extract.

**Traditional Methods**

**Infusion**

Several traditional methods are used to extract bioactive products from natural plant matrices.

**Soaking**
Decoction in water.

**Tincture**
In alcohol or glycerine, which has longer shelf life.

**Steam distillation**
For essential oils.

**Soxhlet**
Apparatus is used for liquid extraction of active compound from a solid sample.

**Supercritical Fluid Extraction (SFE)**
SFE has become more common presently. (Wang, 2003)[35]
**Traditional Methods**
- Steam distillation
- Percolation
- Maceration
- Soxhlet technique
- SFE, Carbon dioxide is commonly used. Supercritical fluids, because of low cost, low toxicity, non-flammable and easy remotability.

**Mass Spectroscopy**
Most sensitive for molecular analysis.

**Boneset (Eupatorium perfoliatum)**
An ethanol extract of the leaves shows a potent cytotoxicity comparable to chlorambinal. The extract showed weak antibacterial activity against grain positive organisms.

**Datura**
Dry leaves contain hyoscyamine (70%) and scopolamine (20%). These act on muscarinic acetylcholine receptors and act as parasympatholytics. They increase the heart rate, relax muscles, dilate pupils and decrease secretions. Scopolamine has an effect on the central nervous system, with a hallucinogenic effect lasting several hours to a day. It is used to treat motion sickness, Parkinson's and visceral spasm.

**Apothecary's Weights: Part A Avoirdupois**

Apothecary's Weights:
- pound (lb) = 12 ounces
- one ounce = 8 drachms
- one drachm = 3 scruples
  = 20 gr.

In the United States, drachm and scruples are not used and instead grains. The pound is not used either. One drachm is equivalent to 60 grains (3 scruples to one ounce 8 drachms, (480 grains.))

**Avoirdupois Weight:**

<table>
<thead>
<tr>
<th>Pound</th>
<th>Ounces</th>
<th>Drachm</th>
<th>Troy grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>256</td>
<td>7000</td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>437.5</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>27.34</td>
<td></td>
</tr>
</tbody>
</table>

**Imperial Measures**
- 1 gallon = 8 pints
- 1 pint = 20 fluid ounces
1 fluid ounce  =  8 fluid drachms
1 fluid drachm  =  60 minums

**Apothecary (or Wine) Measures**

1 gallon  =  8 pints
1 pint  =  16 fluid ounces
(fzz) 1  =  8 fluid drachms
1 fluid drachm  =  60 (mv)
(fz 1)

**Apothecary Measures in Avoirdupois Weight**

1 gallon  =  8.33 pounds
1 pint  =  1.04 pounds
1 fluid ounce  =  1.04 ounces

**Signs and Abbreviations**

- Recipe Rx
- ounce zz
- Drachm z
- fluid ounce fzz
- fluid drachm fz
- scruples J
- pint O
- Minimum M
- drop Gtt
- Granum Gr
- gallon Cong.

Apothecary's Weights: Part B

Physicians and pharmacists, in dispensing medicine have used old apothecary weights and measures which were in use in England prior to 1825. The weights are originally derived from the old English Troy Weight, the fluid measures form the old wine gallon.[36](file:///C:/Users/hamjad/Documents/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.docx#_ftn3)

**Approximate Measures**

Though spoons vary greatly in capacity and from their form are unfit for use in the dosage of medicine, however, commonly prescribed dosages of liquid medicine are as follows.

**Apothecary System** **Metric**
1 teaspoonful = 1 fluid drachm = 4 ml
1 dessert spoonful = 2 fluid drachm = 8 ml
1 tablespoonful = ½ fluid ounce = 15 ml

Note: grammes (Gm) is abbreviated and grains (gr.)

Troy Weight
Troy Weight originates before the time of William the Conqueror, derived from the city of Troyes in France, an important trading city in medieval times.

one Troy ounce is 480 grains
Avoidupois ounce is 437.5 grains
A grain is 64.7 mg

Metric System
The Metric System replaced the apothecary system.

<table>
<thead>
<tr>
<th>grains</th>
<th>Grammes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pound</td>
<td>5760</td>
</tr>
<tr>
<td>ounce</td>
<td>480</td>
</tr>
<tr>
<td>Dram</td>
<td>60</td>
</tr>
<tr>
<td>Scruple</td>
<td>20</td>
</tr>
<tr>
<td>Grains</td>
<td>1</td>
</tr>
<tr>
<td>Gram</td>
<td>15.625</td>
</tr>
</tbody>
</table>

A teacup is 4 ounces or a gill
A wineglass 2 fluid ounces
A tablespoonful ½ fluid ounce
A teaspoonful one fluid drachm

Doctrine of Signature
It was popularized by the medieval European genius Paracelsus. However, these ideas are much more ancient than he and are mentioned in earliest Chinese and Indian medical texts. Ancient Indian medicine men took clues from nature in the interpretation of medicinal properties of plants, and not only that, but every aspect of their life from astrology, nature, and other conceivable forces of nature. However, in the European tradition herbals were oversimplified, if the leaves looked like the liver, then it was useful for liver disease, yellow colorings were good for bile secretion (Indians used turmeric for this, it is true,) spiderwort (Tradescantia) was considered a cure for spider bites, because during warm afternoons, their flowers produced a sticky fluid and thin strands could be seen trapping midget flies, etc., thus invoking memory of spider webs and possible cure for spider bite. However, spiderwort (Tradescantia virginiana) which is considered a historic link between sedges and lilies, has a large chromosome and is often used for botanic cytology work. It has been found that the color of the flower petals is a very sensitive indicator of environmental pollutants, it changes (blue to pink.) Thus it correlates directly to the level of pollutants in the environment. Other environmental monitors are lichens. The presence of lichens assures some presence of fresh air.
Phytochemistry

Medicinal Plant Chemistry
A common sense approach to define medicinal qualities can be constructed easily by simple field observations. Nature always leaves clues, signatures or footprints. It is up to a keen, observant eye to unlock these mysteries of Nature and how common plants have medicinal uses. Plants’ chemical content, fragrance, color, taste, and shape provide clues to their possible medicinal uses. Nature’s mysteries appear in many forms that will be further explored later in this book. For example, any medicinal plant containing a high astringent content (due to high tannin content and marked by a noted feeling of dryness on the tongue) will be useful for the treatment of the following diseases:

- diarrhea
- sore throat
- open wounds, burns
- inflammatory conditions of skin and mucous membranes (ex. root bark of trees, Blackberry)

Aromatic plants with the fragrance of camphor will be useful for neuralgia and muscle aches. Plants with the smell of fresh cut grass (Red Clover, for example) contain coumarins which will act like coumadin, a blood thinner. Plants with the fragrance of cinnamon (Toothache Tree) will have an analgesic, antibacterial, and antiviral effect.

Any plant with a bitter taste will increase the flow of saliva, pancreatic fluids and bile leading to better digestion. This includes most medicinal plants with yellow pigment such as Goldenseal, Gold Thread, Barberry and Turmeric.

Plant leaves that possess a minty odor when crushed will have a carminative effect (aid in digestion) and act on smooth muscles. They will be effective in conditions such as abdominal colic, bronchitis with asthma, and irritable bowel syndrome, but they may increase symptoms of gastric reflux (GERD) and heartburn.

Trees and shrubs producing resins with turpentine odor will be useful as a skin disinfectant, with antibiotic-like effects for skin and mucous membrane infections (for example, Sweet Gum resin, Tea Tree oil and Balsam Fir).

If you wonder how some birds can eat poisonous berries and get away with it, it is because they also eat dirt or clay directly or by eating earthworms which are full of clay, thereby counteracting with the poisonous material. Similarly, indigenous tribes across the globe have been living on common sense and taste of the tongue for their survival. Some have pica for dirt and clay which prevents absorption of poisons from stomach. Therefore, dirty mud-covered fruits and berries have a protective effect which is lacking in clean ones! Women in early pregnancy develop pica and eat unusual stuff (in some countries, clay or laundry detergent). Because pregnant women eat all kinds of different food, some of which could be harmful to the developing fetus. Nature protects the developing fetus by causing nausea and vomiting in the early stages of pregnancy discouraging pregnant women from eating harmful substances. Some women will develop pica, which serves as a natural protection. Those who do not develop pica have severe nausea and vomiting.
Plants with palmate shaped leaves in general will have a laxative effect (May Apple, Castor Oil). Bell shaped flowers usually have an effect on the heart (Foxglove, Lily of the Valley). Plants growing in extreme soil conditions or unusual in appearance (Beech Drops, American Cancer Root and certain mushrooms) may have anti-cancer properties.

Plants with heart shaped leaves such as Meehania, and oval leaves such as Skullcap. Plants which attract butterflies excessively (Milkweeds, Thistles) may have a narcotic sedative effect. Plants which do not get any diseases from insects or parasites produce effective insecticide agents (Neem, Gingko Balboa).

**Active Plant Compounds And Their Medicinal Effects**

[34] Burcia, Bob, American Herbal Association, Quarterly Newsletter, 97, vol. 13, issu. 1.
[36] Middle English avoir de pois commodities sold by weight, from old French avoir de pois, "goods of weight". A system of weight based on the 16 ounce pound. Merchants of trade sold item, by weight, piece 1 by volume, etc. from Latin aver (also "average") goods and peis (F) from Latin pensum, from which the word "pount" is also derived. Apothecary system / Troy system.
[37] Extracted from Common Medicinal Plants of Appalachia and Medical Botany of the Eastern United States.
[38] Pica is an increased appetite for irregular food items, such as clay.

**PHENOLS**

Phenolic compounds are a large varied group of plant metabolites. They make up an important constituent of medicinal plants; following are examples:
- Tannins
- Simple Phenols (catechols, resorcinols, salium, arbutin.)
- Coumarins
- Anthraquinones
- Naphthoquinones
- Flavonoids
- Anthracyanidins
Tannins (Bark, Leaves)
One good source is black tea.

Medicinal:
Ÿ Astringent action
Ÿ Antiseptic
Ÿ Dries up mucous membrane
Ÿ for diarrhea, Antistyptic
Ÿ colitis
Ÿ mouth ulcer, gingivitis
Ÿ inflammatory condition with exudates, hemorrhoids.
Ÿ They are antidotes for metal and alkaloid poisoning (use black tea.)
Ÿ external application as wounds, ulcer bleeding (will stop if applied locally.)

Covered proteins in mucous membranes, forming complex chemical compound changing permeability, effecting collagen tissue. They inhibit 5-Lipoxygenase thus producing anti-inflammatory response.

**Simple Phenols**
Ÿ (catechols, resorcinols, salium, arbutin.)

**Coumarins**
Coumarins belong to a group of carysonols known as benzopyrones, which consist of a benzene ring joined to a pyrone. The word "comarus" is derived from *comarou*, the native name for Tonka bean (*Dipteryx odorata* Wild.) Native of Guiana and Brazil which was isolated in 1820. More than 1,000 natural different types are known. Coumarin itself is present in about 150 species of plants. It is found in nature in combination with sugars such as glycosides. During damage to plant tissue, enzyme activity, lead to loss of glucose, which gives a characteristic odor of fresh cut hay or lawn (sweet clover and tonka bean.) In ammonia solution, coumarin gives blue green or violet fluorescence.

Coumarins are divided:
*Simple* as mentioned earlier.

*Furano coumarins*. These contain furan ring attached to coumarin. They occur in plant families such as Rutaceae and Unibellieare, for example, some celery fruits and Bergapten in Bergamotine. Because of presence of these compound results in drug availability and variation when consumed, especially when taking grape fruit juice, it interferes with bioavailability of other medicines.[1](file:///F:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.doc#_ftn1)

*Pyrano coumarin*, contains 6 member ring. Several species of plants belonging to Rutaceae and Apiaceae, used for medicinal
purposes. Many of these are used in gastrointestinal disorders.

Coumarins have very diverse activities, such as Anticoagulant, skin sensitizing, anti-microbial, antifungal, sedative, hypnotic and estrogenic effects. They also have analgesic, anti-inflammatory, anti-tumor effects. (Revised, Ojala, Tiina. Biological Screening of Plant Coumarins, Helsinki, 2001.)

They act as phytoalexin (formed as response to injury during wilting process) and inhibit growth of fungus pathogens. One of major anti-inflammatory activities, they are used in rheumatism (celery) cough and cold remedies, as well as with psoriasis due to the presence of psoralen as a photosensitizing agent.

A word derived from South American Indian, coumarouna, to a plant Dipteryxodorata - the Guiana, Tonka bean.

- sedative
- spasmylytic
- bactericide
- decrease edema
- absorbs ultraviolet B, thus acts as a sun block

**Anthraquinones**

**Naphthoquinones**

**Flavonoids**

Flavonoids compose the largest group of natural phenols in the Plant Kingdom (over 2000.) They function as plant pigment, being the color of flowers and fruits.
The word “flavonoid” is from Latin flavus, meaning yellow. They consist of a single benzene ring joined by a pyrone structure (primarily present as c-glycosides and rest free state as agly cone.)

They are classified according to oxygen at the carbon 3 position:

1. Flavones
   Present in Rutaceae, Legume and unibelliferae.
2. Flavanols
3. Flavanones
4. Isoflavane

Flavonoids demonstrate their medicinal action in a number of herbal remedies.

Medicinal effects of Flavonoids include:
- anti-inflammatory
- anti-allergic affect
- anti-thrombitic
- vasoprotective (protect mucosa, also)
- they have also anti tumor effects
- diuretic (Butcher’s Broom)
- anti-spasmodic
- anti-fungal antibacterial
- anti-oxidative properties, which play an important role stability of food products and defense mechanism

In general, the health benefits of flavonoids are a reduced risk of coronary artery disease, and a decreased incidence of lung and stomach cancer. Flavonoids are phenolic compounds containing 2 benzene rings (each with 15 carbon atoms) combined by linear carbon atoms.

2 Benzene Ring  +  3 linear C

(C6 - 36C6)
Flavonoids are flower pigments. They are distributed all over. Isoflavonoids are leguminous. They mainly occur in aerial plant organs and are common in citrus fruits, and other families (such as Asteraceae, Leguminoseae). The main biological function of flavonoids is to attract insects for pollination! Another function is to protect from viral fungal infection. Flavonoids have anti-edema, diuretic, anti-allergic, spasmolytic, anti-hemorrhagic effects.

**OTHER (Non-Phenols)**

- Phytoestrogen
- Gum
- Saponin
- Alkaloid
- Iridoid
- Essential Oil
- Resin
- Terpene

**Phytoestrogens**

Plant constructed compounds whose medicinal virtues resemble natural estrogen are called phytoestrogens. They include isoflavones and coumestans.

Common examples are:

- red clover (*Trifolium pratense*)
The study of phytoestrogens has become important due to side effects caused by synthetic estrogen compounds.

**Gums**

Gums are natural plant hydrocolloids salts of polysaccharides, amorous compounds produces in higher plants as a protective mechanism against injury. Gums are complex compounds, on hydrolysis, galactose mannose, xylose, glucose are observed. Gums are used as emulsifiers, stabilizers and thickeners. Gums of linear polymers are less soluble than branched constituents. These solutions are less stable and easily precipitate, increasing viscosity.

**Saponins**

Widespread in plants, up to 70% of plants contain saponin. They are stored as inactive compounds in vacuoles. When attached by microbes, they are converted to active metabolites which slow membrane effects. Cardia glycosides are one type of Saponin which inhibit sodium-potassium ion channels and produce secondary effects such as muscle contraction and improved performance of heart.

Saponins are bitter compounds and stimulate various secretions of endocrine glands, especially in the pancreas, and which help in digestion (explanation for ancient Bitters) or improve pancreatic insulin production (to some extent if there are viable Beta cells) improve diabetic condition. Examples are Cardamom and Cinnamon. They also increase secretion of salivary glands, which is due to an evolutionary response to any bitter substance.

Saponins also mimic many endogenous hormones such as cortisol, thus working on target molecules, producing similar cortisone effects without the side effects of synthetic corticosteroid. These may explain many anti-inflammatory effects of herbal medicines. A prime example is licorice, which contains glycyrrhic acid which acts as a natural cotisone. Saponins are helpful in cases of asthma, arthritis, and hormone problems. Excessive use can produce side effects such as loss of potassium and the development of hyperaldostrism. A short course of licorice will not have a deleterious effect. Licorice is also used for gastritis and inflammation of the stomach; it has been known to treat stomach ulcers and similar digestive disorders for centuries in India. Hypoglycemic effects also could be due to liver enzyme glucosidases.

Saponins have an expectorant effect due to an increase in bronchial secretion, of saliva increase surface activity and liquifactor of mucous due to protein interaction with complex biochemicals (Cardamom is used as an expectorant by the author). An anti-fungal
effect is due to a complex formation with sterols. Leprosy and tuberculosis can be treated with certain saponins. Saponins protect against predatory microbes, fungus and viral mollusks. Timber, for example, is protected from termites due to its saponin content.

Saponins are naturally occurring in glycosides in plants, but also occur in lower marine animals and bacteria. They are named because of their ability to make soapy, foamy lather in water. They have a high molecular weight and high polarity. There are large variations in the structure of saponins due to the variable nature of the sapogenin nature of side chains and their position in the complex molecule.[2] (file:///F:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.doc#_ftn2)

[1] (file:///F:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.doc#_ftnref1) Component of grape fruit juice in activate cytochrome p450 enzymes resulting in an increase and bioavailability of various drugs for hypertension, cancer and heart disease. One other component of grape fruit effect P-glycoprotein pump, mediated transportation which is opposite of it, thus decreasing absorption of some drugs, makes grape fruit unpredictable.

Trease and Evan, W. C. Evan, Pharmacognosy, Saunding, 2002.

Dicoumaril is found by spoiled hay with fermentation of coumarin, which acts as anti-coagulant.

[2] (file:///F:/Herbal%20Medicine%201.31.08,JAFARY%20HERBAL.doc#_ftnref2) Latin sapo, soap, soapwort, saponaria officinalis.