Pharmacognosy Department
Faculty of Pharmacy
Menoufia University

Phytotherapy

For

THIRD YEAR PHARMACY STUDENTS

2019/2020

Preface

This book contains the lecture notes of **Phytothaerpay** for third year pharmacy students, **Faculty of pharmacy**, **Menofia University**.

Phytotherapy, some times referred to as Herbalism or Botanical Medicine, is the use of herbs, their therapeutic or medicinal value. An herb is a plant or plant part valued for its medicinal, aromatic or savory qualities. Herb plants produce and contain a variety of chemical substances acting upon the body.

Phytotherapy is the oldest form of healthcare known to humanity. Herbs have been used by cultures throughout history. It was an integral part of the development of modern civilization. The World Health Organization (WHO) estimates that 4 billion people, 80 percent of the world population presently use herbal medicine for some aspect of primary health care. Herbal medicine is a major component in all indigenous people's traditional medicine and a common element in Ayurvedic, homeopathic, naturopathic, traditional oriental and Native American Indian medicine. WHO notes that of 119 plant-derived pharmaceutical medicines, about 74 percent are used in modern medicine in ways that correlated directly with their traditional uses as plant medicines native cultures.

Special thanks go to all the colleagues who generously gave their time and assistance in writing and revision of different sections of this book.

Staff Members of Phytotherapy

Pharmacognosy Department

Faculty of Pharmacy

Menoufia University

Course Specification for Phytotherapy

A- Basic Information:

- **Program on which the course is given: B. Pharm. Sci.**
- **Department responsible for offering the course:** Department of Pharmacognosy.
- **Department responsible for teaching the course:** Department of Pharmacognosy.
- **Academic year:** Third Year- Second Semester.
- **Course title:** Phytotherapy
- **Contact hours (Credit hours):** Lecture : 2 (2) , Practical : 1 (2), Total : 3 (2+1)

B- Professional Information:

The course aim and intended learning outcomes are based on that mentioned in the programme specification with more course-related specific details

1- Overall Aims of Course:

The student should gain the knowledge and skills that enables him to deal with the medicinal use of the natural products.

2- Intended learning Outcomes of Course (ILO's):

a- Knowledge and Understanding:

By the end of the course the student should be able to demonstrate knowledge and understanding of:

a1- The different methods for preparation of herbal products.
a2- The different classes of secondary metabolites and their use.
a3- The herbal treatment of various disorders..

b- Intellectual Skills:

By the end of the course the student should be able to:

b1- Differentiate between different classes of plant metabolites.
b2- Suggest a formula for certain disorders.

c- Professional and Practical Skills:

By the end of the course the student should be able to:

c1- Prescribe a formula for a disease.
c2- Formulate a herbal dosage form.

d- General and Transferable Skills:

By the end of the course the student should be able to:

d1- Demonstrate self-learning and presentation skills.

3- Contents:

Topics	*Lecture*	*Practical*
Introduction	2	1
Herbal medicine in Respiratory System Diseases.	2	1
Sleep and Hypnotic Drugs	2	1
Diabetes and obesity	2	1
Hypertension and congestive Heart Failure	2	1

Topics	Lecture	Practical
(CHF)		
Herbal Drugs of the Urinary Tract System	2	1
Immune System Diseases	2	1
Skin Diseases	2	1
Digestive System Diseases	2	1
Ear, Nose and Mouth Diseases	2	1
Drug abuse	2	1
Tissue Culture	2	1
Practical Exam	0	1
Total	**24**	**13**

4- Teaching and Learning Methods:

4.1. Lectures : ☒

4.2. Practical: ☒

5- Student Assessment:

5.1. Methods:

Practical exam
Periodicals
Final written exam
Oral exam

5.2. Weight of Assessments

Practical exam	75
Periodicals	30
Final written exam	120
Oral exam	75
Total	**(300 Marks)**

6- List of References:

6.1. Course note Phytotherapy, Lecture notes.

6.2. Essential books (Text book)

1. Medicinal chemistry of bioactive natural products, Xiao-tian Liang, Wei-shuo Fang, Wiley Press, 2006
2. B.A. Hanson, Understanding Medicinal Plants—Their Chemistry and Therapeutic Action, Haworth Herbal Press, w York (2005)

6.3. Recommended books

1. Stevens H M, " Color tests" in "Clarke's isolation and identification of drugs in pharmaceuticals body fluids and post-morteum, 2nd eds. Moffat AC, Jackson JV, Moss MS and Widop B, The pharmaceutical Press, London.

6.4. Periodicals and web sites

- http://www.phytochemistry.com
- http://www.pubmed.com
- www.herbal medicine.com

TABLE OF CONTENTS

Introduction

Phytotherapy Herbal medicine, or phytotherapy, is the science of using herbal remedies to treat the sick. It therefore covers everything from medicinal plants with powerful actions, such as Digitalis and Belladonna, to those with very gentle action, such as chamomile, mint and many others. It should be noted that 'very gentle' action, when referring to chamomile or mint, does not mean they are more or less ineffective, but rather that one would not expect these plants to produce instant and powerful effects like those seen, for instance, after an injection of digitalis or strophanthin. Gentle' action also means that these 'simple' medicinal plants do not as a rule have any appreciable toxic effects, and may therefore be safely taken over an extended period of time.

Allopathy: Also known as "conventional medicine" in Western societies. Allopathy focuses on treating the symptoms of diseases primarily through prescription drugs. This approach utilizes a process of reductionism (focusing on the symptoms exhibited in a part of the organism rather than focusing on the organism as a whole.)

Ayurvedic Medicine: Literally meaning the "science of life." A 5,000-year-old system of medicine originating in India that combines natural therapies with a highly personalized, holistic approach to the treatment of disease.

Homeopathy: A system of medicine founded in the late 18th century in which remedies consist of diluted substances from plants, minerals and animals. It is based on a theory that "like cures like." Remedies specifically match different symptom pattern profiles of illness to stimulate the body's natural healing process.

Naturopathy: A holistic medical system that treats health conditions by utilizing what is believed to be the body's innate ability to heal. Naturopathic physicians aid healing processes by incorporating a variety of natural methods based on the patient's individual needs.

Indigenous or Tribal Medicine: A healthcare system that tends to incorporate various methods of botanical and animal medicines as well as specific ceremonial rituals of the

culture to cure disease. The medicinal knowledge is passed from generation to generation primarily through oral traditions. The system tends to be unique to each tribe.

Traditional Chinese Medicine (TCM): A 3,000-year-old holistic system of medicine combining the use of medicinal herbs, acupuncture, food therapy, massage, and therapeutic exercise. Chinese physicians look for the underlying causes of imbalance in the "yin" and "yang" which lead to disharmony in the "qi" energy in the body. Traditional Chinese Medicine addresses how illness manifests itself in a patient and treats the patient, not the ailment or disease.

Acupuncture: Acupuncture is a comprehensive form of health care that is administered through the insertion of fine needles into the body at specific points that have been shown to be effective in treating specific health issues. Acupuncture has been a part of Traditional Oriental Medicine for several thousand years. In addition, Traditional Oriental Medicine includes Moxabustion, Acupressure, Herbology, Nutrition, Lifestyle Counseling, Breathing and Movement Exercises applied under the same treatment principles.

Aromatherapy Is the therapeutic use of aromatic substances extracted from plants. Essential oil can be used not only for treatment but also for prevention of disease. Systematic use of essential oils in holistic treatments to help improve physical and emotional well being. Essential oils are described not only with reference to reputed pharmacological properties (Antibacterial and anti-inflamatory, etc…). Importance: Removing of stress, Massage, Baths and foot baths, Inhalation.

Pharmacognosy: The study of natural products (i.e., plant, animal, organism, or mineral in nature) used as drugs or for the preparation of drugs. Derived from the Greek *pharmakon* meaning drug and *gnosis* meaning knowledge.

Phytochemicals: Chemical compounds or chemical constituents formed in the plant's normal metabolic processes. The chemicals are often referred to as "secondary metabolites" of which there are several classes including alkaloids, anthraquinones, coumarins, fats, flavonoids,

glycosides, gums, iridoids, mucilages, phenols, phytoestrogens, tannins, terpenes, and terpenoids, to mention a few. Extracts contain many chemical constituents, while chemicals that have been isolated from the plant are considered pharmaceutical drugs (i.e., digoxin having been isolated from the foxglove or *Digitalis lanata* plant).

Phytomedicinals: Medicinal substances that originate from plants. This may include certain phytochemicals as well as whole plants or herbal preparations.

Phytoestrogens: A type of phytochemical with some influence on the estrogenic activity or hormonal system in humans. This rather broad term does not mean that the plant mimics human estrogen, only acts to affect it in some way.

Crude drugs are natural material (Plants, animal, minerals and microorganisms), which is not present in separate and pure compounds and used in healing of the diseases.

Nutraceuticals are specific chemical compounds of natural origin found in foods aiming at preventing or treating the disease.

Phytopharmaceuticals are natural biologically active fraction or pure isolates or standardized extract formulated in certain pharmaceutical dosage form, and legally approved for their intended use and user.

Preparations

Decoction: A tea made from boiling plant material, usually the bark, rhizomes, roots or other woody parts, in water. May be used therapeutically. Natural dyes are often made this way.

Infusion: A tea made by pouring water over plant material (usually dried flowers, fruit, leaves, and other parts, though fresh plant material may also be used), then allowed to steep. The water is usually boiling, but cold infusions are also an option. May be used therapeutically, as hot tea is an excellent way to administer herbs.

Tincture: An extract of a plant made by soaking herbs in a dark place with a desired amount of either glycerine, alcohol, or vinegar for two to six weeks. The liquid is strained from the plant material and then may be used therapeutically.

Liniment: Extract of a plant added to either alcohol or vinegar and applied topically to employ the therapeutic benefits.

Poultice: A therapeutic topical application of a soft moist mass of plant material (such as bruised fresh herbs), usually wrapped in a fine woven cloth.

Essential Oils: Aromatic volatile oils extracted from the leaves, stems, flowers, and other parts of plants. Therapeutic use generally includes dilution of the highly concentrated oil.

Herbal Infused Oils: A process of extraction in which the volatile oils of a plant substance are obtained by soaking the plant in a carrier oil for approximately two weeks and then straining the oil. The resulting oil is used therapeutically and may contain the plant's aromatic characteristic.

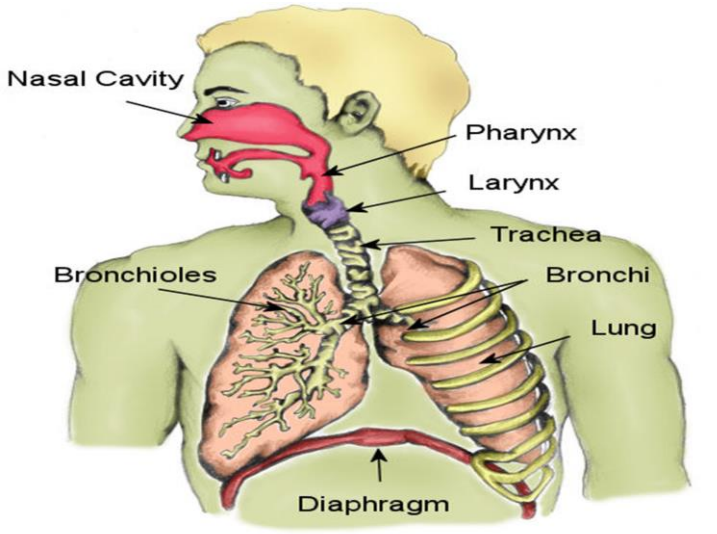
Percolation: A process to extract the soluble constituents of a plant with the assistance of gravity. The material is moistened and evenly packed into a tall, slightly conical vessel; the liquid (menstruum) is then poured onto the material and allowed to steep for a certain length of time. A small opening is then made in the bottom, which allows the extract to slowly flow out of the vessel. The remaining plant material (the marc) may be discarded. Many tinctures and liquid extracts are prepared this way.

Herbal medicine in Respiratory System Diseases.

Respiratory system is responsible for respiration a process by which the exchange of gases between the atmosphere, blood and cells.

Three processes are involved

- inspiration & expiration = inflow & out flow of gases
- pulmonary respiration (external) exchange of gases between lungs and blood
- tissue respiration (internal) exchange of gases between blood and cells.



COUGH

Anti-cough Group:

- Centrally Acting Anti-tussives: Narcotic

Opiates as codeine, hydrocodone, hydromophone,

Dextromethorphane (tolerance)

Non Narcotic

noscopine

levopropoxyphene

- Peripherally Acting Anti-tussives

Demulcents: Liquorice, Verbascum

Local anaethetics: Benzonatate

Humidifying aerosols: stam inhalation, water aerosol

Expectorants : potassium iodide (bad taste, side effects) guafenesin , Ipeca, Liquorice

Mucolytic: acetyl cysteine (free SH gp. opens disulfide gp.in mucus)

Proteolytic enzymes: pancreatic dornase streptodoranse

Anti-histaminic : in coryza only

Bronchodilator: etaphylline (atropine contra-indicated

Anti-cough herbs: expectorants, cough sedatives, to help in bronchitis, flu attacks.

Anti-asthmatic herbs: adrenegic herbs, anti-cholinergic herbs.

Name: **Eucalyptus**

Biological Name: *Eucalyptus globules*, Myrtaceae

Other Names: Eucalyptus, blue gum

Parts Used : Leaves, oil

Active compounds:

- Volatile oil, the major component of which is 1,8-cineole (=eucalyptol), 70-85 % with terpineole, a-pinene, p-cymene and small amounts of sesquiterpenes such as ledol, aromadendrene and viridoflorol; aldehydes, ketones and alcohols
- Polyphenolic acids; caffeic, ferulic, gallic, protocatechuic and others
- Flavonoids including eucalyptin, hyperoside and rutin.

Description:

Eucalyptus is a tall, evergreen tree native to Australia and Tasmania. Among its various species, the blue gum is the one commonly grown in the U.S. The trunk, which grows to 300 feet high or more, is covered with peeling papery bark. The

leaves on the young plant, up to 5 years old, are opposite, sessile, soft, oblong, pointed, and a hoary blue color. The mature leaves are alternate, petioled, leathery, and shaped like a scimitar. The flowers are solitary, axillary, and white, with no petals and a woody calyx. The fruit is a hard, four-celled, many-seeded capsule enclosed in the calyx cup.

- **Vol. Oil 3.5 % , Phenol**ic **acids, Cineol 70-85 %, Tannins: pyrogallol type**

Name: Thyme

Biological Name: *Thymus vulgaris*, Labiatae (Lamiaceae)

Other Names: Thyme, Common Thyme, Garden Thyme, common garden thyme, mother of thyme

Parts Used: leaves and flowering tops

Active Compounds:

- Volatile oil, of variable composition; the major constituent is thymol, with lesser amounts of carvacrol, with 1,8- cineole, borneol, geraniol, linalool, bornyl and linalyl acetate, thymol methyl ether and α-pinene.
- Flavonoids; apigenin, luteolin, thymonin, naringenin and others
- Miscellaneous; labiatic acid, caffeic, tannins etc.

- Phenol acids: Caffeic and rosemarinic acid.

Remedies For:

Carminative, anti-microbial, anti-spasmodic, expectorant, astringent, anthelmintic, tonic, emmenagogue, resolvent, antiseptic.

With its high content of volatile oil. Thyme makes a good carminative for use in dyspepsia and sluggish digestion. This oil is also a strong antiseptic. Used externally as a lotion for infected wounds, and internally for respiratory and tonsillitis, easing sore throats and soothing irritable coughs. An excellent cough remedy, producing expectoration and reducing unnecessary spasm. It may be used in bronchitis, whooping cough and asthma. As a gentle astringent it has found use in childhood diarrhoea and bed wetting.

Combinations: For asthmatic problems it will combine well with Lobelia and Ephedra, adding its anti-microbial effect. For whooping cough use it with Wild Cherry and Sundew.

Dosage:

Infusion: Pour a cup of boiling water onto 2 teaspoonfuls of the dried herb and let infuse for 10 minutes. This should be drunk three times a day.

Tincture: take 2-4 ml of the tincture three times a day.

Aqueous infusion is mucolytic, anti-tussive

Name: Red Sage

Biological Name: *Salvia officinalis*, **Labiateae (**Lamiaceae)

Other Names: Red Sage, Garden Sage, Sage, purple top sage

Parts Used: leaves

Active Constituents:

- Volatile oil, containing α and β-thujone as the major components, with cineole, borneol, camphor, 2-methyl-3-methylene-5-heptene and others
- Diterpene bitters; picrosalvin (= carnosol) acid and others
- Flavonoids, salvigenin, genkanin, 6-methoxgendwanin, hispidulin, luteolin
- Phenolic acids; rosmarinic, caffeic,
- Salviatannin, a condensed catechin.

Actions :

Carminative, anti-spasmodic, anti-microbial, astringent, anti-inflammatory, sudorific, expectorant, tonic, aromatic, nervine, vermifuge, emmenagogue, diuretic, stimulant, diaphoretic, stomachic, antiseptic, antiphlogistic for gingivitis, stomatitis of mouth, antihydrotic (against night sweat), inhibition milk secretion.

Red Sage is the classic remedy for inflammations of the mouth, throat and tonsils, its volatile oils soothing the mucous membranes. Used as a mouth wash for inflamed and bleeding gums (gingivitis), inflamed tongue (glossitis) or generalized mouth inflammation (stomatitis). An excellent remedy in mouth ulcers (apthae). As a gargle it will aid in the treatment of laryngitis, pharyngitis, tonsillitis and quinsy. A valuable carminative used in dyspepsia. It reduces sweating when taken internally and may be used to reduce the production of breast milk. As a compress it promotes the healing of wounds. Red Sage stimulates the muscles of the uterus

and so should be avoided during pregnancy. Jethro Kloss calls sage an almost "cure-all-you could never go amiss if you take sage."

Combinations: As a gargle for throat conditions it combines well with Tomentil and Balm of Gilead. In dyspepsia it can be combined with Meadowsweet and Chamomile.

Dosage:

Infusion: Pour a cup of boiling water onto 1-2 teaspoonfuls of the leaves and let infuse for 10 minutes. This should be drunk three times a day. Mouthwash: put 2 teaspoonfuls of the leaves in half a liter (one pint) of water, bring to the boil and let stand, covered, for 15 minutes. Gargle deeply with the hot tea for 5-10 minutes several times a day.

Tincture: take 2-4 ml of the tincture three times a day.

Safety:

Avoid during pregnancy α lactation higher doses produce tachycardia, hot flushes, convulsions & dizziness.

Name: CINNAMON BARK

Biological Name: *Cinnamomum zeylanicum,* Family Lauracae

Other Names: Parts Used: bark

Constituents:

The principle constituent of cinnamon bark is the volatile oil, of which yields 0.5-1.0. %; the bark contains also tannin and mucilage.

Inferior qualities are generally more mucilaginous and contain a volatile oil of inferior fragrance.

The drug yields about 4% of ash and from 26 - 36% of crude fiber; it yields to alcohol 90 %. 14-16 % of extractive.

"Quillings" yield 0.9 -1-3 %. of volatile oil.

The volatile oil (weight per ml. at 20° , 0.994 to 1-034; o.r. – 0.3° to 1°) contains from 55 to 65 %. of cinnamic aldehyde togther with eugenol (4 -10 %), terpenes and small quntities of other substances.

Uses: Cinnamon is used chiefly as a carminative or as a flavouring agent in astringent powders and tinctures. It has aromatic, antiseptic and mildy astringent properties.

ACTIONS

- Warming stimulant
- Carminative
- Antispasmodic
- Antitesptic
- Antiviral

<u>Other Constituents:</u>

- limenene, α-terpinol volatile oil
- oligomeric procyanidin

Cold and Flu

HERBS FOR COMMON COLD AND FLU

UPPER RESPIRTORY TRACT INFECTION
ACUTE CORYZA COMMON COLD

An acute, usually afebrile catarrhal URI with major involvement in any or all airways including the nose, paranasal passages, throat, larynx, and often the trachea and bronchi.

CAUSES: VIRAL rhinovirus,
adenovirus, influenza virus,
parainfluenza virus,
respiratory syncytal virus,
certain echovirus, coxsackievirus.

Epidemiology of Influenza

Epidemics of influenza A occur every 2 or 3 years, whereas those caused by influenza B virus are usually seen at 4- to 6- years intervals. To comprehend how these epidemics can occur, you must keep in mind that only antibodies directed against the hemagglutinin are protective, although antibodies to the neuraminidase do lessen the severity of the infection. The recurring epidemics are possible because of antigenic changes in the hemagglutinin, which permit the virus to be spread in a non-immune population. It is proposed that these antigenic changes occur in the following two ways: (1) by spontaneous mutations within the virus, resulting in minor antigenic changes in the hemagglutinin (**antigenic drift**), and (2) by recombination, in which, for example, one virion from a bird and one virion from an animal (perhaps a pig) simultaneously infect a susceptible cell, producing progeny virus with an entirely new antigenic hemagglutinin (**antigenic shift**).

Two major factors contribute to the exchange of genetic information. First, influenza A viruses are found naturally in birds, animals, and humans. Second, the segmented nature of the influenza virus genome contributes to the observed high recombination frequency. One can readily produce antigenic hybrids between avian and animal influenza viruses by the multiple infection of cell cultures with different viruses because most pandemics begin in China, and because birds migrating from Australia to China, as well as swine in China, carry type A virus, it has been proposed that these two reservoirs are the progenitors for the major antigenic shifts responsible for worldwide influenza epidemics.

As one might surmise, the minor change occurring during antigenic drift can still be partially or totally neutralized by antibodies present in a population that has recovered from previous influenza epidemics.

Antigenic shift, however, may find a totally non-immune population, and it is these strains that cause the undergoing antigenic drift but not antigenic shift.

A newer approach to a more successful influenza vaccine is the use of live attenuated of influenza virus to induce a more effective immune response. The most promising vaccines of this type have been developed from a master cold-adapted strain that was grown in chick embryo cells until a mutant was selected, whose growth was optimal at 25^0C. Using this master strain, living vaccines are prepared by appropriate recombination techniques to contain any desired that they are more protective than the formalin

inactivated whole virus preparations, probably because they induce an lgA response.

Moreover, they do not cause illness when given to children because their optimal growth temperature is 10 to 12^0C below that of the nasal mucosa. It would seem probable that such vaccines will be widely used in the not-too-distant future.

Another type of vaccine is the split-virus preparation, in which the hemagglutinin and the neuraminidase spikes are separated from the rest of the viral proteins. Such vaccines have no side effects and appear to be safer for children than are the formalin-inactivated whole-virus preparations. Unfortunately, the split-virus vaccine is not as immunogenic as the whole-virus preparation; two doses of the split-virus vaccine given about a month apart are required to induce protective levels of serum antibodies in children.

In spite of the inadequacies of current vaccines, annual immunization is recommended for high-risk groups such as those with diabetes, chronic pulmonary disorders, and all persons older than 65 years of age, as well as for health care workers and vital community personnel.

Infection facilitated by:

excessive fatigue,
allergic nasopharyngeal disorders,
inhalation of nauseous fumes,
during midphase of menstrual cycle,
pathogenic bacteria causing otitis media, sinusitis, bronchitis of viral orifin, 2ry bacterial infection.

PROPHYLAXIS:

- immunity is type specific (specific vaccin for each virus). polyvalent bacterial vaccine,
- vitamins, citrus fruits, large dose of vit. C, (no virus shedding, sensation of well being), human interferon,
- chemical interferon inducer as N N dioctadecyl N N bis (2 hydroxyethyl) propane diamine reduce virus shedding.

TREATMENT

BED REST
ANALGESICS, ANTIPYRETICS

(aspirin increases virus shedding with only slight symptomatic improvement in febrile rhinovirus cases).

(aspirin not recommended unless severe symptoms enough to keep patient at home)

ANTICHOLINERGIC

in early stages, atropine, belladonna Tr. to dry mucosa.

PHENYLPROPANOLAMINE oral.

PHENYLEPHRINE, EPHEDRINE nasal drops, spray.

to: remove nasal congestion.

STEAM INHALATION relieve chest tightness.

COUGH SYRUP CODEINE, TERPINEHYDRATE

EXPECTORANTS iodide syrup, potassium iodide syrup,

ANTHIHISTAMINICS

for allergic rhinorrhea

ANTIBITICS DO NOT AFFECT common cold so

NOT RECOMMENDED unless bacterial complication develops.

Anti-flu herbal formula

	%	V.O.%	Ash %	Acid Insol. Ash %
Tilia	25	0.1	4.2	3.0
Guava	25	0.3	5.7	3.0
Verbascum	25	-	8.0	3.0
Anise	25	1.5	11.0	2.5

Name: Linden

Biological Name: *Tilia cordata* , Tiliaceae

Other Names: Linden, Lime Blossoms, Linden flowers, Tilia

Parts Used: Dried flowers

Active compounds:

- Volatile oil, up to about 0.1 %, containing farnesol, geraniol, ester
- Flavonoids; hesperidin, quercitin, astragalin, tiliroside and others
- Miscellaneous; mucilage (in the bract), phenolic acids, tannins

Remedies for:

Nervine, anti-spasmodic, hypotensive, diaphoretic, diuretic, anti-inflammatory, emmenagogue, astringent.

Linden is a relaxing remedy for nervous tension. Also used as a prophylactic against the development of arteriosclerosis and hypertension. Its relaxing action combined with a general effect upon the circulatory system give Linden a role in the treatment of some forms of migraine. The diaphoresis combined with the relaxation explain its value in feverish colds and flu.

Combinations: In raised blood pressure it may be used with Hawthorn and European Mistletoe, with Hops in nervous tension and with Elder Flower in the common cold.

Dosage:

Infusion: pour a cup of boiling water onto 1 teaspoonful of the blossoms and leave to infuse for 10 minutes. This should be drunk three times a day. For a diaphoretic effect in fever, use 2-3 teaspoonfuls.

Tincture: take 1-2 ml of the tincture three times a day.

Name: Mullein

Biological Name: *Verbascum thapsus*, Scrophulariaceae

Other Names: Mullein, Aarons Rod, Great Mullein, velvet plant, white mullein, verbascum flowers, woolen blanket herb, bullock's lungwort, flannel flower, shepherd's club, hare's pig beard taper, cow's lungwort

Parts Used: Dried leaves and flowers

Active Compounds:

- Iridoids
- Flavonoids such as verbascoside and hersperidin 1.5-4 %.

- Mucilage on hydrolysis: xyloglycan, arabin galactan, acidic non-branched arabino-galactan
- Saponins
- Tannins
- Volatile oil

Mucilage by total hydrolysis ⟶ galact. (47%), arabinose (25%), glucose (14%), xylose (6%), rhamnose (4%), mannose (2%), fucose (1%),
Uronic acid (12.5%).

- mucilage 3 %
- inverted sugar 11%
- carotenes, xanthone
- sterols: sitosterol, stigmasterol
- phenol acids: caffeic, ferulic, protocatechuic acid.

Verbascum densiflorum BERTOL.
(syn: Verbascum thapsiforme SCHRAD. Non RAFIN.)

Actions :
Expectorant, demulcent, diuretic, anti-inflammatory, nervine, anti-spasmodic, vulnerary, alterative, astringent.

Mullein is a good respiratory remedy. Also for toning the mucous membranes of the respiratory system, reducing inflammation whilst stimulating fluid production and thus facilitating expectoration. It is considered a specific in bronchitis where there is a hard cough with soreness. Its anti-inflammatory and demulcent properties indicate its use in inflammation of the trachea and associated conditions.

Externally an extract made in olive oil is excellent in soothing and healing any inflamed surface or easing ear problems.

Combinations: In bronchitis it combines well with White Horehound, Coltsfoot and Lobelia. In painful coughing, Priest & Priest recommended combining with Elder and Red Clover, and for asthma with Gumweed.

Dosage:

Infusion: Pour a cup of boiling water onto 1-2 teaspoonfuls of the dried leaves or flowers and let infuse for 10-15 minutes. This should be drunk three times a day.

Tincture: Take 1-4 ml of the tincture three times a day.

Actions:

Sooth the sore throat, anti-asthmatic, effective against catarrh, (inhalation of vapours on cool fire), cough relief, sedative to respiratory tract (irridoids) expectorant (phlegm increase by saponins) anti-rheumatic, anti-inflammatory (saponins and flavonoids).

Name: Guajava leaf. Guafa

Biological name: *Psidium Guajava*. Myrtaceae

It is a fruiting tree with edible fruits, native to tropical America, cultivated all over the world.

Leaves simple short petiole, oval to ovate lamina 10-14 cm length 5-6.5 cm width, asymmetric base, entire margin, acute apex, reticulate venation, veins prominent an

the lower side, grey to greenish-green colour, coriaceous texture, aromatic odour and taste.

Constituents:

1- volatile oil (0.35 %)

2- tannins (8.15 %)

3- ellagic acid

4- flavonoids

5- resins (3.15 %)

Action:

Cough expectorant

Anti-septic for respiratory tract

Anti-inflammatory

Astringent

Anti-asthmatic drugs

Name: Ephedra

Biological Name: Ephedra sinica, Ephedra intermedia, Ephedra equisetina, Ephedra distacha, Ephedra trifurca, *Ephedraceae.*

Other Names: ma Huang, desert tea, Mormon tea, American ephedra, Chinese ephedra, European ephedra, Pakistani ephedra, Ephedra

Parts Used: Herbs

Active compounds:

Ephedra's active medicinal ingredients are the alkaloids ephedrine and pseudoephedrine. The stem contains 1-3 % total alkaloids, with ephedrine accounting for 30-90 % of this total, depending on the plant species employed. Both ephedrine and its synthetic counterparts stimulate the central nervous system,

dilate the bronchial tubes, elevate blood pressure, and increase heart rate. Pseudoephedrine (the synthetic form) is a popular over-the-counter remedy for relief of nasal congestion.

Actions:

Diaphoretic, bronchial dilator, diuretic

Induces perspiration, warms coldness, relieves wheezing, moves fluids. It is used for common cold, wheezing, bronchial asthma, bronchitis, and oedema.

Useful For: Asthma, Common Cold, Hay fever, Congestion, Cough**,** Weight loss and obesity.

Asthma and hay fever: Ephedra is useful in the treatment of mild to moderate hay fever and asthma. It is recommended that you supplement the ephedra use with substances that support the adrenal glands, such as licorice, panax ginseng, vitamin C, magnesium, zinc, vitamin B-6, and pantothenic acid.

The traditional herbal treatment of asthma involves the use of ephedra in combination with herbal expectorants. The expectorants modify the secretions from the respiratory tract, ultimately improving its function by having the user spit the secretion out. The most commonly used expectorants are licorice, grindelia, euphorbia, sundew, and senega.

Weight Loss Aid: Ephedrine suppresses the appetite and increases the metabolic rate of adipose tissue. Ephedra activates the sympathetic nervous system, increasing the metabolic rate and increasing the amount of the food converted to

heat (thermogenesis). This prevents the body converting these foods to fat, thus helping in the control of weight gain by those who have low metabolism.

Ephedra is often used in conjunction with methylxanthine sources such as coffee, tea, cola nut, and guarana. The methylxanthines enhances the thermogenic effect of ephedra. Clinical studies have also shown that aspirin may be effective in increasing the thermogenic effect of ephedrine.

Dosage:

The crude powdered stems of ephedra (with less than 1 % ephedrine) are employed at a dose of 1- 4 grams per day in tea form.

Tincture: of 1- 4 ml three times per day can be taken.

Over-the-counter drugs containing ephedrine can be safely used by adults at a dose of 12.5-25 mg every four hours. Adults should take no more than 150 mg every twenty-four hours.

Pseudoedrine is typically recommended at a dose of 60 mg every six hours.

Safety:

Ephedra should not be used by those with external deficiency with symptoms of spontaneous sweating. Because the alkaloids have an effect similar to that of adrenaline, ephedra should not be used with symptoms of high blood pressure or insomnia.

Ephedra has a long history of safe use at the recommended amount. However, abuse of the drug-especially for weight loss-can lead to amphetamine-like side

effects, including elevated blood pressure, muscle disturbances, insomnia, dry mouth, heart palpitations, nervousness, and even death due to heart failure.

Anyone with high blood pressure, heart conditions, diabetes, glaucoma, thyroid disease, and those taking MAO- inhibiting anti-depressant should consult with a physician before using any type of product with ephedra.

Pseudoephedrine can cause drowsiness and should be sued with caution if driving or operating machinery. Ephedra-based products should be avoided during pregnancy and lactation and used with caution in childern under the age of six years.

US FDA recommended that the amount of ephedra added to dietary supplements to 8 milligrams. FDA wants warning labels put on the products cautioning against taking them for more than a week, and advising consumers not to combine them with other stimulants. These were retracted on strong opposition from the General Accounting Office (GAO), that the agency does not have enough evidence to make such recommendation. However, FDA has kept the warning against mixing ephedrine with other stimulants.

Medical experts suggest that used as a stimulant, ephedra can raise blood pressure and heart rate, cause vomiting, heart palpitations, dizziness, nervousness and more serious reactions, including heart attacks, seizures and strokes. U.S.FDA has said that between 1997 and 1999 it had received 140 reports of illness or death linked to ephedra alkaloids. Since then, the agency has gotten another 103 such reports, but those haven‘t been investigated. A recent study reported in the New England Journal of Medicine suggest that ephedra might be the main culprit for those deaths.

Because of the possible danger due the abuse, we recommended that you should limit the amount of this herb consumed strictly. It has been shown that many times, the actual amount of the active ingredients present in the products can differ substantially from batch due to poor quality controls. So, caution is recommended. We also recommended that you do not take this with stimulants such as caffeine.

Name: Lobelia

Biological Name: *Lobelia inflata,* Campanulaceae

Other Names: Lobelia, Pukewee, Indian tobacco, bladderpod, wild tobacco, emetic herb, emetic weed, lobelia herb, asthma weed, rag root, eye-bright, vomit wort

Parts Used: Aerial

Constituents :

- Piperidine alkaloids, mainly lobeline, with lobelanidine, lobelanine, and minor amounts of norlobelanine (=isolobelanine), lelobanidine, lovinine, isolobinine lobinanidine and others
- Chelidonic acid
- Miscellaneous; resins, gums, fats etc.

Remedies For:

Anti-asthmatic, anti-spasmodic, expectorant, emetic, nervine, diaphoretic, diuretic. Lobelia is one of the most useful systemic relaxants available. It has a general depressant action on the central and autonomic nervous system and on neuro-muscular action. It may be used in many conditions in conditions in combination with other herbs to further their effectiveness if relaxation is needed. Its primary

specific use is in bronchitic asthma and bronchitis. Lobelia is a powerful respiratory stimulant, whilst isolobelanine is an emetic and respiratory relaxant, which will stimulant catarrhal secretion and expectoration whilst relaxing the muscles of the respiratory system and relaxation.

Combinations: It will combine well with Cayenne, Grindelia, Pill-bearing Spurge, Sundew and Ephedra in the treatment of asthma.

Dosage:

Infusion: pour a cup of boiling water onto 1/4 to 1/2 teaspoonful of the dried leaves and let infuse for10-15 minutes. This should be drunk three time a day.

Tincture: take 1/2 ml of the tincture three times a day.

Safety: Lobelia may have some toxic effect and should not be taken internally without proper consultation. Safe to use externally. No other information available.

Sleep and Hypnotic Drugs

Insomnia

Definition:

Insomnia is the inability to obtain an adequate amount or quality of sleep. The difficulty can be in falling asleep, remaining asleep, or both. People with insomnia do not feel refreshed when they wake up. Insomnia is a common symptom affecting millions of people that may be caused by many conditions, diseases, or circumstances.

Causes:

Transient insomnia is often caused by a temporary situation in a person's life, such as an argument with a loved one, a brief medical illness or jet lag. When the situation is resolved or the precipitating factor disappears, the condition goes away, usually without medical treatment.

Chronic insomnia usually has different causes, and there may be more than one. These include:

- A medical condition or its treatment, including sleep apnea
- Use of substances such as caffeine, alcohol, and nicotine
- Psychiatric conditions such as mood or anxiety disorders
- Stress, such as sadness caused by the loss of a loved one or a job
- Disturbed sleep cycles caused by a change in work shift
- Sleep-disordered breathing, such as snoring
- Periodic jerky leg movements (*nocturnal myoclonus*), which happens just as the individual is falling asleep
- Repeated nightmares or panic attacks during sleep.

Another cause is excessive worrying about whether or not a person will be able to go to sleep, which creates so much anxiety that the individual's bedtime rituals and behavior actually trigger insomnia. This is called psychophysiological insomnia.

Circadian rhythm sleep disorders are dyssomnias resulting from demands of social activities, shift work, or travel. The term circadian comes from a latin word meaning daily. There are three circadian rhythm sleep disorders. Delayed sleep phase type is characterized by going to bed and arising later most people. Jet lag type is caused by travel to a new time zone. Shift work type is caused by the schedule of a person's job. People who are ordinarily early risers appear to be more vulnerable to jet lag and shift work-related circadian rhythm disorders than people who are " night owls."

There are some patients who do not fit pattern three disorders and appear to be the opposite of the delayed sleep phase type. These patients have an advanced sleep phase pattern and cannot stay awake in the evening, but wake up on their own in the early morning.

Symptoms of insomnia:

People who have insomnia do not start the day refreshed from a good night's sleep. They are tired. They may have difficulty falling asleep, and commonly lie in bed tossing and turning for hours. Or the individual may go to sleep without a problem but wakes in the early hours of the morning and is either unable to go back to sleep, or drifts into a restless unsatisfying sleep. This is a common symptom in the elderly and in those suffering from depression. Sometimes sleep patterns are reversed and the individual has difficulty staying awake during the day and takes frequent naps. The sleep at night is fitful and frequently interrupted.

Sleepwalking disorders:

Which is sometimes called somnambulism, occurs when the patient is capable of complex movement during sleep, including walking. Like sleep terror disorder, sleepwalking occurs during stage 3 and stage 4 NREM sleep during the first part of the night. If the patient is awakened during a sleepwalking episode, he or she may be disoriented and have no memory of the behavior. In addition to walking around, patients with sleepwalking disorder have been reported to eat, use the bathroom, unlock doors, or talk to others. It is estimated that 10-30 % of children have at least one episode of sleepwalking.

However, only 1-5 % meet the criteria for sleepwalking disorder. The disorder is most common in children eight to 12 years old. It is unusual for sleepwalking to occur for the first time in adults.

PARASOMNIAS:

Parasomnias are primary sleep disorders in which the patient's behavior is affected by specific sleep stages or transitions between sleeping and waking. They are sometimes described as disorders of physiological arousal during sleep.

Nightmare disorder is a parasomnia in which the patient is repeatedly awakened from sleep by frightening dreams and is fully alert on awakening. The actual rate of occurrence of nightmare disorder is unknown. Approximately 10-50 % of children between three and five years old have nightmares. They occur during REM sleep, usually in the second half of the night. The child is usually able to remember the content of the nightmare and may be afraid to go back to sleep. More females than males have this disorder, but it is not known whether the sex difference reflects a difference in occurrence or a difference in reporting.

Nightmare disorder is most likely to occur in children or adults under severe or traumatic stress.

Sleep terror disorder is a parasomnia in which the patient awakens screaming or crying. The patient also has physical signs of arousal, like sweating, shaking, etc. It is sometimes referred to as pavor nocturnus.

Unlike nightmares, sleep terrors typically occur in stage 3 or stage 4 NREM sleep during the first third of the night. The patient may be confused or disorder for several minutes and cannot recall the content of the dream. He or she may fall asleep again and not remember the episode the next morning. Sleep terror disorder is most common in children four to 12 years old and is outgrown in adolescence. It affects about 3 % of children. Fewer than 1 % of adults have the disorder. In adults, it usually begins between the ages of 20 and 30. In children, more males than females have the disorder. In adults, men and women are equally affected.

Treatment:

Treatment of insomnia includes alleviating any physical and emotional problems that are contributing to the condition and exploring changes in lifestyle that will improve the situation.

Changes in behavior:

Patient can make changes in their daily routine that are simple and effective in treating their insomnia. They should go to bed only when sleepy and use the bedroom only for sleep. Other activities like reading, watching television, or snacking should take place somewhere else. If they are unable to go to sleep, they go into another room and do sometimes that is relaxing, like reading watching

television should be avoided because it has an arousing effect. The person should return to bed only when they feel sleepy.

Patients should set the alarm and get up every morning at the same time, no matter how much they have slept to establish a regular sleep-wake pattern.

Naps during the day should be avoided, but if absolutely necessary, then a 30 minute nap early in the afternoon may not interfere with sleep at night.

Another successful technique is called sleep-restriction therapy, which restricts the amount of time spent in bed to the actual time spent sleeping. This approach allows a slight sleep debt to build up, which increases the individual‘s ability to fall asleep and stay asleep. If a patient is sleeping five hours a night, the time in bed is limited to 5-5 1/2 hours, the time in bed is gradually increased in small segments, with the individual rising at the same time each morning: at least 85 % of the time in bed must be spent sleeping.

Drug therapy:

Medications given for insomnia include sedatives, tranquilizers, and antianxiety drugs. All require a doctor’s prescription and may become habit-forming. They can lose effectiveness over time and can reduce alertness during the day. The medications should be taken two to four times daily for approximately three to four weeks, though this will vary with the physician and patient. If the insomnia is related to depression, then an antidepressant medication may be helpful. Over-the-counter drugs such as antihistamines are not very effective in bringing about sleep and can affect the quality of sleep.

Sedative or hypnotic medications are generally recommended only for insomnia related to a temporary stress (like surgery or grief) because of the potential for

addiction or overdose. Trazodone, a sedating antidepressant, is often used for chronic insomnia that dose not respond to other treatments. Sleep medications may also cause problems for elderly patients because of possible interactions with their other prescription medications. Among the safer hypnotic agents are lorazepam, temazepam, and zolpidem. Chloral hydrate is often preferred for short-term treatment in elderly patients because of its mildness. Short-term treatment is recommended because this drug may be habit forming.

Narcolepsy is treated with stimulants such as dextroamphetamine sulfate or methylphenidate. Nocturnal has been successfully treated with clonazepam.

Children with sleep terror disorder or sleepwalking are usually treated with benzodiazepines because this type of medication suppresses stage 3 and stage 4 NERM sleep.

Other measures:

Relaxing before going to bed will help a person fall asleep faster. Learning to substitute pleasant thoughts for unpleasant ones (imagery training) is a technique that can be very helpful in reducing worry. Another effective measure is the use of audiotapes which combine the sounds of nature with soft relaxing music. These, alone or in combination with other relaxation techniques, can safely promote sleepiness.

Alternative treatment:

Some alternative approaches may be effective in treating insomnia caused by anxiety or emotional stress. Meditation practice, breathing exercises and yoga can break the vicious cycle of sleeplessness, worry about inability to sleep, and further

sleeplessness for some people. Yoga can help some people to relax muscular tension in a direct fashion. The breathing exercises and meditation can keep some patients from obsessing about sleep.

Homeopathic practitioners recommend that people with chronic insomnia see a professional homeopath. They do, however, prescribe specific remedies for at-home treatment of temporary insomnia: *Nux vomica* for alcohol or substance-related insomnia, lgnatia for insomnia caused by grief, *Arsenicum* for insomnia caused by fear or anxiety, and *passiflora* for insomnia related to mental stress.

Melatonin has also been used as an alternative treatment for sleep disorders. Melatonin is produced in the body by the pineal gland at the base of the brain. This substance is though to be related to the body‘s circadian rhythms.

Practitioners of Chinese medicine usually treat insomnia as a symptom of excess yang energy. Cinnabar is recommended for chronic nightmares. Either magnetic magnetite or "dragon bones" is recommended for insomnia associated with hysteria or fear.

If the insomnia appears to be associated with excess yang energy arising from the liver, the practitioner will give the patient oyster shells. Acupuncture treatment can help bring about balance and facilitate sleep.

Dietary changes like eliminating stimulant foods (coffee, cola, chocolate) and late-night meals or snacks can be effective in treating some sleep disorders. Nutritional supplementation with magnesium, as well as botanical medicines remedies that may be effective for sleep disorder are valerian (*Valeriana officinalis*), passionflower (*Passiflora incarnate*), and skullcap (*Scutellaria lateriflora*). Many alternative treatments are effective in treating both the symptom of insomnia and its underling causes. Incorporating relaxation techniques into bedtime rituals will help a person go to sleep faster, as well as improve the quality of sleep. These methods include meditation, massage, breathing exercises, and a

warm bath, scented with rose, lavender (*Lavendula officinalis*), marjoram, or chamomile (*Matricaria recutita*). Eating a healthy diet rich in calcium, magnesium, and the B vitamins is also beneficial. A high protein snack like yogurt before going to bed is recommended, or a cup of herb tea made with chamomile, hops (*Humulus lupulus*), passionflower (*Passiflora incarnate*), or St.john's Wort (*Hypericum perforatum)* to encourage relaxation. Acupuncture and biofeedback have also proven useful.

Name: Valerian

Biological Name: Valerian officinalis, *Valerianaceae*

Other Names: English valerian, German valerian, great wild valerian, Vermont valerian, vandal root, all-heal, American English valerian, Garden valerian, phu, Valerian

Valerian grows wild all over Europe. But most valerian used for medicinal extracts is cultivated.

Valerian is a perennial plant that reaches about 5 feet. Its medicinal roots consist of long, cylindrical fibers issuing from its rhizome. Its stem is erect, grooved, and hollow. Valerian leaves are fernlike. Tiny flowers – white, pink, or lavender-develop in umbrella-like clusters and bloom from late spring through summer. When dried valerian roots have an unpleasant odor, like that of " dirty socks " .

Constituents:

A- Volatile oil 0.2-1.73 %

Bornyl acetate, β-caryophyllene, valeranone, Valerenal., bornyl isovalerate.

Action:

Decrease spontaneous motility, sedative 1/3 due to volatile fractions mainly bornyl esters, 2/3 due to valepotriates valeronone 5 mg/kg increases barbiturates sleeping time. Valeporiates [15% valtrate , 80 % dihydro valtrale, 5 % acevaltrate] 3 mg/kg had a tranquilizing effect = 10 mg / kg chloropromazine. Valeptriates: spasmolytic action, musculotropic influencing Ca^{+2} entry.

Valtrates, dihydrovaltrates, thymolyptic similar to benzodiazepines. Valerenic acid, valerenalders decreased locomotor activity (50 mg / kg) general antidepressant binding to GABA receptors, inhibiting enzymes breaking GABA. Aqueous fraction showed affinity to GABA receptors lipophilic fraction show no action. Dihydro valtrates have affinity to barbiturate i.e. receptors sedative action synergistic of GABA, a chloride channel receptor complex. Lipo philic fraction shows affinity for peripheral benzo diazepine receptors. Valenan extract inhibited up take, stimulated release of ^{3}H GABA by reversal of GABA carriers which as Na^{+} dependant, Ca^{+2} independent. So increase extracellular concentration of GABA at the synaptic cleft enhancing its biochemical & behavioural effect. No acute or chronic toxicity observed.

Clinical Trials and Proof of Efficacy:

A 1996 study by Gerhard and associates compared valerian to benzodiazepines and placebo in the treatment of insomnia. Side effects were reported by 50 percent of the subjects in the benzodiazepine-treated group but only 10 percent of subject treated with valerian. Valerian and benzodiazepines wre similary effective for alleviating insomnia.

Clinical studies on the use of valerian in insomnia have shown that valerian extract, standardized to 0.8-percent valeric acid, may effective at a dose of 300 up to 900 mg one hour before bedtime. Valerian, however, does not produce as dramatic a sedative effect as a benzodiazepin sleeping pill. The use of valerian extract can take two to three weeks before significant benefits in sleep are achieved.

It may not be an appropriate medicine for acute insomnia because of this delayed onset of action. Once valerian extract takes effect, it dose promote natural sleep without any risk of dependence.

Valerian extract at a dose of 50 to 100 mg taken two or three times daily has been shown to relive performance anxiety and the stress of driving in heavy traffic. Lager doses of valerian extract may be necessary for patients who have been using benzodiazepine prescription for anxiety.

Dosage:

Many people take 300-500 mg of valerian root herbal extract in capsules or tables one hour before bedtime for insomnia.

As an alcohol-based tincture, 5 ml can be taken before bedtime

Combination products with lemon balm, hops, passion flower and scullcap can also be used.

Although no cases of drug interactions have been reported. Animal studies have demonstrated that valerian can potentiate the effect of phenobarbital and benzodiazepines. It can also aid in the withdrawal of benzodiazepine tranquilizers and sleeping pills, but this should only be done under a doctor's supervision.

There are no known contraindications to using valerian during pregnancy or lactation. Valerian should not be used nightly for longer than six months.

Poisoning may result if large amount of the tea are taken for more than 2 to 3 weeks. Do not boil the root.

Consuming large amounts of valerian may cause headache, giddiness, blurred vision, restlessness, nausea and morning grogginess.

FDA lists valerian as generally safe. Use only in consultation with a doctor if you are using valerian for therapeutic purposes. If you experience any side effects, stop the use immediately.

Remedies For:

- Insomnia
- Blood pressure
- Anticonvulsant- treatment of epilepsy

Clinical studies have shown that people taking valerian had shown significantly improved sleep quality without morning grogginess. Some researchers have compared valerian to benzodiazepines such as Valium. However, valerian is a much milder and safer sedative. Unlike valium, is not addictive or dose not promote dependency. Valerian's sedative effect is not significantly exaggerated by alcohol and barbiturates unlike valium.

Toxicity: cytotoxicity (epoxying) potential alkylating agent.

Biological Names: ***Passiflora incarnata***

Family: Passifloraceae

Other Names: Passion Flower, Maypop

Part Used: Leaves and whole plant

Active Compounds:

- Alkaloids; harmine, harman, harmaline, harmalol, and Passaflorine.
- 2.5 % flavonoids C-glucosyl derivatives vitexin, saponarin, orientin, homoorientin, schaftoside, isoschaftoside, vicenin 0.05 % maltol.
- Small amounts of cyanogenic glycoside gynocordin.
- Essential oil of composition.
- Human alkaloids (still uncertain)

Remedies For:

Nervine, hypnotic, anti-spasmodic, anodyne, hypotensive.

Passiflora has a depressant effect on Central Nervous System activity and is hypotensive; they are used for their sedative and soothing properties, to lower blood pressure, prevent tachycardia and for insomnia. The alkaloids and flavonoids have both been reported to have sedative activity in animals. Many of the flavonoids, such as apigenin, are well-known for pharmacological activity, particularly anti-spasmodic and anti-inflammatory activities. It is the herb of choice for treating intransigent insomnia. It aids the transition into a restful sleep without any " narcotic" hangover. It may be used wherever an anti-spasmodic is required, e.g. in Parkinson's disease, seizures and hysteria. It can be very effective in nerve pain such as neuralgia and the viral infection of nerves called shingles. It may be used in asthma where there is much spasmodic activity, especially when there is associated tension.

Combinations:

For insomnia, it will combine well with Valerian, Hops and Jamaican Dogwood.

Dosage:

Infusion: pour a cup of boiling water onto 1 teaspoonful of the dried herb and let infuse for 15 minutes. Drink a cup in the evening for sleeplessness, and a cup twice a day for the easing of other conditions.

Tincture: take 1- 4 ml of the tincture and use the same as the infusion. The recommended intake of the dried herb is 4- 8 grams three times per day. Many European products combine passion flower with other sedative herbs to treat mild to moderate anxiety.

Tr. 2-3 gm / 150 ml water.

Safety:

Used in the amounts listed above passion flower is generally safe and has not been found to negatively interact with MAO-inhibiting antidepressant drugs. Passion flower has not been proven to be safe during pregnancy and lactation.

Hops

Biological Name: *Humulus Iupulus*

Family: Cannabaceae (Hemp family)

Other Names: Common hop, Hops

Part used: fruit

Active Compounds:

Hops are high in bitter substance. The two primary bitter principles are known as humulone and lupulus. These bitter principles are thought to be responsible for the appetite stimulating properties of hops. Hops also contain about 1-3 % volatile oils.

Constituents :

(1) Resin 15 – 30 % (the active sedative part) of 2 parts

(a) light petroleum soluble part : β soft resin (active)

(b) light petroleum insoluble part : α soft resin (less active)

α soft resin main component bitter substance lupulone (L.p ether soluble)

(2) Essential oil 0.3 – 1.0 % of mono and sesquiterpenes, myrcene, linalol, farnesene, caryophyllene

(3) Tannins 2-4 %

(4) Flavonoid glycosides: kampherin, quercetin monodiglycosides, xanthohumol & chalcones

(5) Ferulic, chlorogenic acid (3 methyl Δ^2 butenyl = isoprenyl)

Remedies For:

- Anxiety
- Insomnia
- Anodyne, diuretic, febrifuge, hypnotic, sedative, tonic.

Hops have been shown to have mild sedative properties. Many herbal preparations for insomnia combine hops with more potent sedative herbs, such as valerian.

Hops are most commonly used for their calming effect on the nervous system. Hop tea is recommended for nervous diarrhoea, insomnia, and restlessness. It will

also help to stimulate appetite, dispel flatulence, and relieve intestinal cramps. It can be usefully combined with valerian for coughs and nervous spasmodic condition. Hops also have diuretic properties and can be taken for various problems with water retention and excess uric acid. A hop pillow is a popular method overcoming insomnia. (Sprinkle hops with alcohol and fill a small bag or pillowcase with them.)

Dosage:

The dried fruits can be made into a tea by pouring 150 ml of boiling water over 1-2 teaspoons of the fruit. Steep for 10 to 15 minutes before drinking. Tinctures can be taken in amounts of 1-2 ml two to three times per day. Dried hops in tablet or capsule form can also be taken at a dose of 500-1000 mg 2 to 3 times per day.

Many herbal preparations combine hops with other herbal sedatives such as valerian, passion flower, and scullcap.

Dose of powder: 0.4 gm

Safety:

Generally considered safe. There are no known contraindications or potential interactions with other medications.

There are some reports of persons experiencing allergic skin rash after handling the dried flowers. This could have been from pollen sensitivity.

Diabetes

Diabetes is a disorder of the body's metabolism, the process of converting the food we eat into energy. Insulin is the major factor in this process, which begins when sugar is broken down during digestion to create glucose, the main source of fuel for the body. This glucose passes into the bloodstream, where insulin, a hormone secreted by the pancreas (a large gland behind the stomach), allows it to get into the cells.

Diabetes is an auto-immune deficiency disease.

Over 100 million people suffer from diabetes in the world.

People with type II diabetes are at higher risk of vision and kidney problem, heart disease and nerve damage.

LEARN ABOUT YOUR DIABETES

Risk Factor for Diabetes:

- Age.
- Heredity.
- Obesity.
- Race.
- Poverty.
- Impaired glucose tolerance.

- High blood pressure.
- High cholesterol level 240 mg/dl or more.
- Gestational diabetes in women.

Types of diabetes:

- Type 1 diabetes: failure of pancreas to secrete insulin: auto-immune type.
- Type II diabetes (NIDDM): adult onset seen in families: fat, cholesterol in blood block insulin action.
- Impaired glucose tolerance: high blood sugar level below diabetes level 115 140 mg/dl
- Secondary diabetes condition to other disease
- Gestational diabetes: appear during pregnancy, diet & exercise control it

Complications

Type 1 diabetes : Diabetic keto acidosis coma.

Type II diabetes : Hyperosmolar non-ketonic coma.

Diabetic retinopathy

Diabetic neuropathy

Diabetic nephropathy

Diabetic foot ulcers

Glycosylation of albumin &L.D.L.

Aldose reductaze stimulation & formation of alditols.

Oral therapy	**Disadvantages** **Side effects:-**
Alpha glucosidaze inhibitors.	▪ G.I.T. troubles, vomiting, nausea, bloody diarrhoea.
Biguanides.	▪ Hypoglycemic coma.
Meguanides.	▪ Impaired liver function.
Thiazolidinediones.	▪ Blood disorders.
Sulfonylureas.	▪ Skin reaction. ▪ Anorexia.

General recommendations to diabetic patients

a- Supplements

- Vitamin E 400 i.u / day
Its deficiency increases free radicals formation
- Vitamin C 200 mg /day
It lowers alditols
- Vitamin B6 100 mg /day
It prevents neuropathy
- Vitamin B12 1000 mg/Week
It needed for normal functions of nerve cells
- Biotin 16 mg/day
It needed to process glucose oxidation
-Alpha lipoic acid ALA,
⟶ In primrose oil 4 gm/day
Gamma lipoic acid GLA
They are antioxidants
- Carnitine 1 mg/10 kg body weight
It helps fats consumption in energy production
- Taurine 1.5 gm /day

It corrects blood viscosity

b - Life Style Change

There are three factors affecting the widespread of diabetes**:**

1- Age

Possibility of disease at age 30 – 40 years is 0.5 – 12 %

While it increases to 15 % at age over 60 years.

2- Mode of life

In large towns incidence of diabetes for people above 60 years old is up to

20 % and decreased to 10 % in country people.

3- Diet Therapy

Diet therapy programs resulted in increased efficacy and safety of oral drugs

c- Life Style Change

There are two factors affecting the widespread of diabetes:

1- Age

Possibility of disease at age 30 – 40 years is 0.5 – 12 %. While it increases to 15

% at age over 60 years.

2- **Mode of life**

In large towns incidence of diabetes for people above 60 years old is up to 20 % and decreased to 10 % in country people.

3- Diet therapy

Diet therapy programs resulted in increased efficacy and safety of oral drugs

d- Exercises

- Light exercises are required for diabetic patients, 20 minutes of walking or aerobics every day are quite sufficient.
- Exercises improve the condition, relieve the faulty circulation, helps in weight reduction and control blood sugar level.

Herbs for Diabetes

Since antiquity, diabetes has been treated with plant medicine. Recent scientific investigation has confirmed the efficacy of many of these preparations, some of which are remarkably effective. Only those herbs that appear most effective, are relatively non-toxic and have substantial documentation of efficacy are covered here.

Name: Bilberry

Biological Name: *Vaccinium myrtillus*, Ericaceae

Other Names: Black whortleberry, blueberry, burren myrle, dyeberry, huckleberry, hurleberry, whinberry, whorteberry, wineberry, Bilberry

Parts Used: Fruit

Bilberry may lower the risk of some diabetic complications, such as diabetic cataracts and retinopathy.

Active compounds:

Anthocyanosides, the bioflavonoids complex in billberries, are potent antioxidants. They support normal formation of connective tissue and strengthen capillaries in the body. Anthocyanosides may also improve capillary and venous blood flow.

Remedies For:

Bilberry may help in the treatment of:

Atherosclerosis
Bruising
Cataracts
Circulation
Diabetes
Muscular degeneration
Night blindness
Retinopathy
Varicose veins

Recent research showed that Bilberry extract has promising anti-ulcer activity, both preventive and curative. It also has shown anti-cancer properties in animal experiments.

When administered to diabetes patients, Bilberry normalized capillary collagen thickness and blood sugar levels in humans and animals.

Dosage:

People often take 240 – 480 mg per day of bilberry herbal extract in capsules or tablets standardized to provide 25 % anthocyanosides.

Berries: 1 teaspoon dried berries with 1 cup of water, 1 cup per day

Tincture: take 15 to 40 drops in water, 3 or more times a day as needed.

Safety: In recommended amounts, there are no known side effects with bilberry extract.

Bilberry does not interact with commonly prescribed drugs, and there are no known contraindications to its use during pregnancy or lactation.

Leaves can produce symptoms of poisoning if used over long periods.

Name: Fenugreek

Biological Name: *Trigonella foenum-graecum*

Leguminosae : Fabaceae

Other Names: Greek hay, foenugreek, fenigreek, fenugreek

Experimental and clinical studies have demonstrated the anti-diabetic properties of fenugreek seeds. The active ingredient responsible for the anti-diabetic properties of fenugreek is in the defatted portion of the seed that contains the alkaloid trogonelline, nicotinic acid and coumarin.

Parts Used: seeds

Active Compounds:

The steroidal saponins account for many the beneficial effects of fenugreek, particularly the inhibition of cholesterol absorption and synthesis. The seeds are rich in dietary fiber, which may be the main reason it can lower blood sugar levels in diabetes.

Remedies For:

Mucilaginous, emollient, febrifuge, restorative

Fenugreek is useful for:

Atherosclerosis

Constipation

Diabetes

High cholesterol

Hypertriglyceridemia (high triglycerides)

Dosage:

Due to the somewhat bitter taste of fenugreek seeds, debitterized seeds or encapsulated products are preferred. The typical range of intake is 5 – 30 grams with each meal or 15-90 grams at once with one meal.

Safety:

Use of more than 100 grams of seeds daily can cause intestinal upset and nausea. Otherwise, fenugreek is extremely safe.

Saponins of diosgenin derivatives, and yourogenin derivative.

Name: Bitter Melon

Biological Name: *Momordica charantia* , Cucurbitaceae

Other Names: Balsam pear, Bitter Melon

Parts Used: Fruit

Bitter Melon, also known as balsam pear, is a tropical vegetable widely cultivated in Asia, Africa and South America, and has been used extensively in folk medicine

as a remedy for diabetes. The blood sugar lowering action has been clearly established in both experimental and clinical studies.

Bitter melon is composed of several compounds with confirmed anti-diabetic properties. Charantin, extracted by alcohol, is a hypoglycemic agent composed of mixed steroids that is more potent than the drug tolbutamide which is often used in treatment of diabetes. Momordica also contains an insulin-like polypeptide, polypeptide-p, which lowers blood sugar levels when injected subcutaneously into type 1 diabetes patients. The oral administration of 50-60 ml of the juice has shown good results in clinical trials.

Excessively high doses of bitter melon juice can cause abdominal pain and diarrhoea. Small children or anyone with hypoglycemia should not take bitter melon, since this herb could theoretically trigger or worsen low blood sugar, or hypoglycemia. Furthermore, diabetics taking hypoglycemic (such as chloropropamide, glyburide, or phenformin) or insulin should use bitter melon with caution, as it may potentiate their action.

Bitter melon grows in tropical areas, including parts of the Amazon, East Africa, Asia, the Caribbean, and throughout South America, where it is used as a food as well as a medicine. It's a slender, climbing annual vine with long stalked leaves producing yellow solitary male and female flowers borne in the leaf axils. The fruit is warty-looking gourd, usually oblong and resembling a small cucumber. The young fruit is emerald green turning to orange-yellow when ripe. At maturity the fruit is enclosed in scarlet arils. The generic name "Momordica" comes from Latin meaning "to bite", referring to the jagged edges of the seed which appears as if the leaves have been bitten. The plant lives up to its Bitter Melon name as all parts of the plant including the fruit tastes very bitter.

In the Amazon, local people and indigenous tribes grow bitter melon in their gardens, adding the fruit and/or leaves to beans and soup for a bitter or sour flavor. Sometimes preboiling it first with a little salt will remove some of the bitter flavoring. Medicinally, the plant has a long history of uses by the indigenous people of the Amazon. The fruit juice and/or a leaf tea is employed for diabetes, colic, sores and wounds, infections, worms and parasites, as an emmengogue, and for measles, hepatitis, and fevers.

Bitter Melon capsules and tincture are becoming more available in the U.S. where in herbal medicine they are being used for diabetes, HIV and other viruses, colds and flu and psoriasis.

Active Compounds:

At least three different groups of constituents in bitter melon have been reported to have hypoglycemic (blood sugar lowering) or other actions of potential benefit in diabetes mellitus. These include a mixture of steroidal saponins known as charantin, insulin-like peptides, and alkaloids. It is still unclear which of these is most effective or if all three work together. Two proteins, known as alpha-and beta-momorcharin, inhibit the AIDS virus, but this research has only been demonstrated in test tubes and not in humans. An as yet unidentified constituent in bitter melon inhibit the enzyme guanylate cyclase, that may benefit people with psoriasis.

Remedies For:

Bitter melon is reported to help in the treatment of:

Diabetes

HIV support

Psoriasis

The blood lowering action of the fresh juice of the unripe bitter melon has been confirmed in scientific studies in animals and humans. Charantin is more powerful than the drug tolbutamide, which is sometimes used in the treatment of diabetes to lower the blood sugar levels.

The ripe fruit of bitter melon has been shown to exhibit some remarkable anticancer effects, especially leukemia.

Dosage:

For those with a taste or tolerance for bitter flavor, a small melon can be eaten as food or up to 50 ml fresh juice can be drunk per day. An option for those who do not care for the bitter taste are bitter melon tinctures, of which 5 ml is generally taken two three times per day.

Safety:

Excessively high doses of bitter melon juice can cause abdominal main and diarrhea. Small children or anyone with hypoglycemia should not take bitter melon because this herb could theoretically trigger or worsen low blood sugar (hypoglycemia). Furthermore, diabetics taking hypoglycemic drugs (such as chlorpopamide, glyburide, or phenformin) or insulin should use bitter melon only under medical supervision, as it may potentiate the effectiveness of the drugs and lead to severe hypoglycemia.

Name: French Bean

Biological name: *Phaseolus vulgaris* L., Fabaceae

Part used: Fruits

It contains arginine, glucokinin – like polysaccharides, flavonoids, chromium and zinc minerals.

Name: Green Tea

Biological Name: *Camellia sinensis,* Theaceae

Other Names: Green Tea

Parts Used:

Cultivated plant in China, India Srilanka, Kenya

Black tea: consist of reddish leaves almost black much shrivelled.

Better quality consist of leaf buds

Green Tea consist of greenish yellow to brownish green leaf fragments

Black tea faintly aromatic odour, green tea practically odourless.

Taste of both astringent & bitter

Active Compounds:

Green tea contains volatile oils, vitamins, minerals, and caffeine, but the active constituents are polyphenols, particularly the catechin called epigallocatechin gallate (EGCG). The polyphenols are believed to be responsible for most of green tea's roles in promoting good heath.

Research demonstrates that green tea guards against cardiovascular disease in many ways. Green tea lowers total cholesterol levels and improves the cholesterol profile (the ratio of LDL cholesterol to HDL cholesterol) reduces platelet aggregation, and lowers blood pressure.

The polyphenols in green tea have also been shown to lessen the risk of several types of cancers, stimulate the production of several immune system cells, and have antibacterial properties-even against the bacteria that cause dental plaque.

Remedies For:

Green tea is useful for:

Cancer risk reduction

Gingivitis (periodontal disease)

High cholesterol

Hypertension (high blood pressure)

Hypertriglyceridemia (high triglycerides)

Immune function

Infection

Most of the studies of the effect of the green tea have been focused on its cancer-causing and cancer-protecting aspects. Green tea polyphenols are potent antioxidant compounds. They are more potent antioxidant than vitamin E and vitamin C.

Green tea may also increase the activity of the oxidant enzyme. A number of animal studies have shown that green tea polyphenols may offer significant protection from cancer. It is believed that they do so by blocking the formation of cancer-causing compounds such as nitrosamines, suppressing the activation of carcinogens, and detoxifying or trapping cancer causing agents.

Green tea is believed to have the greatest effect on cancers of the gastrointestinal tract such as stomach, small intestine, pancreas, and colon; lung cancer; and estrogen related cancers including most breast cancers.

It is interesting to note that green tea prevents cancer, whereas black tea increases the risk of certain cancer such as cancer of the rectum, gallbladder, and endometrium.

Dosage:

Much of research documenting the health benefits of green tea is based-on the amount of green tea typically drunk in Asian countries-about three cups per day (providing 240-320 mg of polyphenols).

To brew green tea, 1 teaspoon of green tea leaves are combined with 250 ml (1 cup) of boiling water and steeped for three minutes. Tablets and capsules containing standardized extracts of polyphenols, particularly EGCG, are available; some are decaffeinated and provide up to 97 % polyphenols content which is equivalent to drinking four cups of tea.

Safety:

Green tea is extremely safe. The most common adverse effect reported from consuming large amounts of green tea is insomnia, anxiety, and other symptoms caused by the caffeine content in the herb.

Flavour & aroma: hex-3-en-1-ol, geraniol, benzyl alcohol, 2 phenyl ethanol in green tea in addition to livalol in black tea

Abundant flavonoids: apigenin derivatives iso schaftoside, vicenin 3.

Hydroperoxide lyazes (antioxidant enzymes & potent inhibitor of lipoxygenaze).

Triterpenoid saponins.

Obesity

Definition: Greater than 10 % above normal weight or

Body fat above 25 % in men

30 % in women

10 to 50 % or above of adults population suffers obesity.

It is an excessive amount of body fat.

"Over Weight = excess body weight relative to height"

Body mass indices ***B.M.I***

W / H.

W / H^2 Quetelet index

W in KG, H in meters

24 normal females

25 normal males

27 obesity

Types of obesity:

Physiological obesity; three main categories

Hyperblastic: increased number of fat cells

Hypertrophic: increased size of fat cells

Hyper blastic – Hyper trophic: increase number and size of fat cells.

Male type = Android = hypertrophic = is always associated with metabolic complications , e.g. diabetes, glucose intolerance, hypertension, hyperlipidemia …. etc. Fat is usually deposited in the upper part of the body abdomen & trunk axis.

Female type: Gynoid obesity. Fat is deposited in lower part; viz: hip and thigh.

Natural Weight loss aids

1- 5 Hydroxy tryptophan

50 – 100 mg per day causes weight loss of 10.34 pounds in 6 weeks

2- Thermogenic formula

Ephedrine	22 mg
Caffeine	30 mg
Theophylline	50 mg

3- Chromium

It increases cellular sensitivity to insulin, 200 – 400 mcg per day.

4- Medium chain triglycerides MCTs

MCTs of C_6 – C_{12} saturated fats from Coco nut oil promotes weight loss.

5- Hydroxy citrates

They are present in Malabar tamarind and Karkadeh (Hibiscic acid), 500 mg per day causes weight loss.

6- Coenzyme Q_{10}

It is essential for transport and decomposition of fatty acids to energy, 100 mg per day aids in weight loss.

7-Diet: standard Diet

-Proteins 20 – 25 %

-Fats 10 – 15 %

-Carbohydrates 60 – 70 %

-Fats 1g ⟶ 9 calories

Carbohydrates & Proteins 1 g ⟶ 4 calories

Problem of Western Diet

50 – 60 % of calories from fats (saturated)

30 % of carbohydrates (refined sugars)

Refined carbohydrates, saturated fats must be eliminated if the Set Point is to be reduced. So Diet must contain

- No refined sugars, White Flour.
- No saturated fats (Butter, Creams etc..)
- Balanced formula of carbohydrates, proteins, fats, minerals, vitamins

Some low protein sparing modified fast formulae are followed to produce weight loss.

- Set meals are preferred than snacks.
- Dietary fibers be included e.g. bran, whole flour, citrus fruits.

Role of Dietary Fibres:

- Increase chewing time, slowing eat – process.
- Increase fat excretion in faeces.
- Improve digestive hormone secretions & digestion.
- Induce satiety by giving feeling of fullness, stimulating release of intestinal hormones that reduce food intake
- Diet with high protein,

  low carbohydrates
  very low fats
  2 L water drinking / day
  Dietary fibres supplements 5 g / day.

- Supporting liver by

  Lipotropic, choline, herbal cholagogues.

Regime Tea

Components:

Indian Senna Leaves 30 % in Herb

Dry leaflets of Cassia angustifolia vahl

Leguminoseae = Caesalpinaceae

Active Constituents:

Anthraquinone glycosides = Hydroxy anthracenes, Dianthrone glucosides not less than

2.5 % calculated as sennoside B

Sennosides A&B are the most abundant, are 8 , 8` diglucosides of sennidins.

Sennidins are stereo isomers of 10 – 10 dimer rhein dianthrone.

Sennoside A rectangular yellow plate

Soluble freely in $NaHCO_3$ solution $\xrightarrow{80\ ^oC}$ sennoside B

Sennoside B light yellow prisms (needles from water)

Other anthraquinones in small amounts

- Aloe emodin dianthrone diglucoside
- Rhein-8-glucoside
- Aloe emodin-8-glucoside
- Chrysophanol-8-glucoside
- Free anthraquinones

- Polysaccharides 2.5 %

* Mucilages 1- (arabinose – galactose – galactouronic acid – rhamnose)

2- Mannogalactan (mannose, galactose)

* Free sugars; fructose, glucose, pinnitol, sucrose

- Chrysophanic acid,

- Saponin
- resin
- Volatile oils (traces)

Content of one bag	**mgm/ one bag**
Sennosides	15.00
(*Cassia angustifola*)	
Trans anethole	650.00
(*Foeniculum vulgare*)	
choline	8.0
Vitamin A	0.59
Vitamin B_1	1.02
Nicotinic acid	4.16
Vitamin C	8.40
Potassium	15.58
Sodium	0.09
Iron	0.06
Calcium	1.53
Magnesium	1.00
Chromium	0.02
Zinc	1.40
(*Cichorium intybus*)	

Action:

- **Pharmacodynamic effect**

The purgative (laxative) action of senna is due to the action of intestinal flora (E-coli).

Sennoside A is reduced to 8-glucosylrhein anthrone, hydrolysed to rhein anthrone.

Rhein anthrone is the active principle causes peristaltic movements of the large intesttime.

When injected to coecum stimulates the production of prostaglandin PGE_2 only in the colon.

PGE_2 causes severe diarrhrea when administered.

Sennoside A $\xrightarrow{\text{Intestinalflora}}$ **Sennedin A** + 2 glucose

E- coli + H_2O ↓

Rhein anthrone

Rhein anthrone with purgative and potent propulsive action causes evracuation of bowls, reduces transit time in colon. Indo methacin, Sc – 1922, not PPP depressed the stimulated propulsion of rhein

anthrone in a similar manner to the depression of the purgative action.

In addition, Rhein anthrone also inhibits colon water and sodium absorption by the Interference with the enzyme action on Na^+ pump.

Pharmacokinetics:

Sennosides pass through G.I.T

No absorption in stomach

In large intestine under go break down

Where rhein anthrone which exerts the action in situ at the colon.

The two effects lead to

- Production of bulky stools
- Short transit time of stools
- Rapid evacuation of bowl
- Less absorption of food materials, low food intake, decrease body weight.

Toxicology

- Abdominal discomfort (colic & cramps associated with irritant laxatives)
- Prolonged use or excessive dose ⟶ diarrhoea, loss of K^+, finger clubbing, cachexia reduced serum globulin concentration.
- Sennosides A,B are the least toxic anthraquinones, LD_{50} I.V. sennoside A "4.1 g / 1 Kg rats, rhein 8 glucoside" 0.4 g / kg rats.

Acute oral toxicity 5 g / kg rats (total senna extract).

LD_{50} I.V. 2.5 g / kg rats (total extract).

Ssennosides dose 10 – 60 mg.

Dose in Royal Regime Tea 15 mgm sennosides per one bag.

It is classified as Herb of C.I, A.E, I

i.e. Natural product with dose limitation, contraindication, adverse effects; drug registered as pharmaceutical speciality.

A.E. colic, cramp.

C.I. other cathartics, intestinal diverticulosis.

Not in pregnancy

Not for children's below 12 years age.

But is non mutagenic, non carcinogenic, non teratogenic.

Fennel 50 % in Herb

Dry ripe fruits of *Focniculum vulgare* Mill Apiaceae

Adive Constituents: not less than 1 % vol. Oil

Sweet Fennel Oil	%
1. Pinene	3.05
2. B pinene	1.26
3. Limonene	20.14
4. Fenchone	2.4
5. Estragole	1.22
6. Anethole	65.80

Action:

- ***Pharmacodynamics***

Spasmolytic:

Significant antispasmodic action on smooth muscles

Action is due to the effect on calcium metabolism, tone & amplitude of peristalsis decreased in the stomach (after 2 – 8 minutes) in the intestine (after 30 minutes) (in rats).

Orally fennel water relaxes smooth muscles by direct local action, but stimulates it via sympathetic nervous system (action blocked by atropine & hexamethoiunm)

So Fennel relaxes sphincters, releases spasms, very effective in dyspepsia, carminative, antispasmodic in colic cramps of irritant cathartics

- **Action on liver**

S.C. of Fennel oil 100 mg / day to 300 mg / day per kg (rats) significantly increases the rate of liver regeneration process in hepatoectomized animals{12}

It also increases bile secretion by 30 %

- **Diuretic Action**

Alcohol extract 500mg / kg show significant diuretic activity (orally) 5 – 12 – 24 hours and diuresis was not associated with Na^+, K^+ excretion.

- **Analgesic Action**

Fruits given orally 500 mg / kg (rats) showed analgesic, antipyretic activity 90–150 minutes after administration

- **Antioxidant Action**

Fennel oil is an antioxidant, inhibits lipid peroxidation

- **Oestrogenic Action**

  Structural resemblance of anethole to catecholamines (dopamine) has bearing on the oestrogenic activity.

Dopamine acts by inhibition of prolaction secretion so anethole acts on milk secretion by competing with dopamine at appropriate receptor:

- So increase milk secretion.
- Triggered mating response in immature female rats.
- Induces oestrus growth.
- Exerts antiandrogenic effect on adult male rats.
- Anethole (its polymer photoanethole) resembles stilbene and diethyl stilbsterol in estrogenic avidity

Respiratory Effect

By inhalation a mild antitussive action, by oral route increases volume, thickness of expelled respinatory tract fluid R.T.F, and this action is a dose dependant effect of anethole and fenchone.

Antimicrobial Action

Fennel oil as a potent bacteriostatic equal to or even greater than the standard antibiotics

Pharmacokinetics

Anethole absorbed slowly when orally given, 60 % to 23 % of the dose are still in the stomach after 30 – 120 minutes (in mice) 2 % of the dose is only found after 72 hours in faeces of rats

Safety & Toxicology

LD_{50} of oil 3.12 g / kg (rats oral)

LD_{50} anethole oral 2.09 g / kg (rats)

No acute toxicity below lethal dose, no significant changes in chronic toxicity of a dose of 100 mg / kg extract for 90 days, no changes in haematology, morphology, spermatogenesis, no change in DNA activity (18), no phototoxic, mutagenicity. No risk in use in pregenancy or lactating women, it is used as galactagogue.

Contra indications:

It is categorised as allergen spice although no allergic symptoms were noticed, except in very rare cases in hypersensitive persons.

Precautions:

High doses should be avoided in hepatic disorders.

CHICORY

***Cichorium intybus* L. Asteraceae 20 % in Regime Tea**

Constituents:

1- Bitter principles; Lactucin & Lactucopicrin (1%)

2- Chicoric acid

3- Inulin and fructose

4- Coumarins; esculetin and esculin (esculetin 6 – 0 glucoside)

5- Choline

6-Flavonoids 1.12 %

7-Water content in 100 gm fresh material 96.2 %

8-Proteins 21.24 %

9-Fats 2.12 %

10-Carbohydrates 7.88 % (58 % of them is inulin)

11-Dietary fibers 12.74

12-Vitamins mg per 100 gm dry weight

Vitamin A	1.48
Vitamin B1	2.55
Nicotinic acid	10.41
Vitamin C	210.40

13- Minerals mg per 100 gm dry weight

Sodium	21.24
Potassium	3894.80
Calcium	382.32
Magnesium	276.12
Iron	14.65
Sulphur	382.32
Chromium	350.00

Actions*:*

Spasmolytic, antioxidant, osmotic diuretic, liver stimulant in hepatitis, diabetes, supplement in regime and bitter tonic.

Dose: 0.1gm t.d.s.

Pharmacodynamic:

Rats injected by 640 mg / kg b.wt. of acetaminophen showed liver damage and protected from it when injected by 200 mg / kg b.wt. of chicory extract.

	With Chicory	Without Chicory
A.L.P.	393 i.u.	222 i.u.
G.O.T	767 i.u.	114 i.u.
G.P.T	191 i.u.	68 i.u.

Chicory is liver protecting and compensates of loss of potassium ions.

Regime Tea

Weight Reduction by

1- Laxative action increase stools Bulk, Rapid transit, dercrease absorption in colon.

2- Diuretic action.

Systemic Diuresis by Fennel, no effect on Na^+, K^+ ions

Sennedins decrease Na^+, H_2O absorption in colon

3- Chromium lower blood glucose level (25 mcg per packet)

4- Lipotropic effect: Choline, Tanins in chicory Avoiding side effects by natural herbs

Colic, cramps by Fennel

5- Thermogenic effect of anethole

Hypokalemia

K+ Loss of by Chicory provides 74.8 mg K+ per packet, 0.4 mg Na+ vitamin loss. Chicory is source of vitamins A, B1, nicotinic acid, vitC.

The Standard Dose: Initial Dose

One bag on 250 ml of boiled water for 5 minutes to be taken.

Half the dose is to be taken at bed-time daily for the first week.

The Following Dose

In second week and further, two doses to be taken daily, the first one after breakfast and the second one after dinner or as prescribed by the physician.

Toxicity

None recorded with the prescribed dose. But higher doses may be associated with diarrhoea, colic, hypokalemia.

Precautions

- Not to be used with diuretics, laxatives, N.S.A.I.D. Drugs.
- Avoided in cases of diarrhoea, diverticulosis, pregnant, lactating women and children below age at 12 years.
- Constipation may occurs if the herb is stopped suddenly, to avoid this it is preferable to reduce the dose gradually until complete withdrawal of the herb.

Types of Diet

I. **Carbohydrates:** bread, rice, macaroni, potatoes, sweets, sugars, chocolates, gaseous waters.

II. **Fresh vegetables:** source of vitamins, & minerals

Green salad (Leafy Vegetables), fresh fruits (Limited Number of sugary fruits)

III. Proteins

Boiled or roasted white meat. (Chicken or Rabbit, or Fishes), red meat can be used but with out any fats.

IV. Fats

Butter, oils, margarine, cream.

It is preferable to use fats with unsaturated fatty acids { omega fats} e.g. olive oil, linseed oil, sardine oil.

Diet to be followed must be of low carbohydrates.

Rich fresh vegetables.

Moderate meat.

Little fats preferably unsaturated.

Dietary fibers 5 gm / day bran, whole grains, whole flour.

Avoid 3 modern age white poisons;

White flour

Refined sugar

Excess salt

Clinical Data

Rate of weight reduction varies, it is greater in highly obese persons

Dose

The dose may be applied as needed and adjusted to fit for the gradual loss of weight.

The standard dose could be followed.

Hypertension

Introduction

Blood pressure is the force of blood against the walls of arteries. Blood pressure has two components-the systolic pressure (it is the force that blood exerts on the artery walls when the heart is pumping) over the diastolic pressure (it is the residual force that remains when the heart relaxes between beats). The measurement is written one above or before the other, with the systolic number on top and the diastolic number on the bottom. For example, a blood pressure measurement of 130/85 mm Hg (millimeters of mercury) is expressed verbally as "130 over 85."

Blood pressure varies from person to person and by ages. In general: Normal blood pressure is less than 130 mm Hg systolic and less than 85 mm Hg diastolic. Optimal blood pressure is less than 120 mm Hg systolic and less than 80 mm Hg diastolic.

Hypertension is generally defined as a blood pressure greater than 140/90.
One should bring his: blood pressure closer to what's considered optimal, 120/80. Elevated in blood pressure is bad because it raises your risk for heart attack and stroke.

High blood pressure increases the chance (or risk) for getting heart disease and/or kidney disease, and for having a stroke. Hypertension is often called the silent killer. It is especially dangerous because it often has no warning signs or symptoms. Regardless of race, age, or gender, anyone can develop high blood pressure.

It is estimated that one in every four adults has high blood pressure. But only about half of those who have it known they have it. Once high blood pressure develops, it usually lasts a lifetime. One can prevent and control high blood pressure by taking action.

About half of the people diagnosed with high blood pressure have borderline to mildly high blood pressure. For these cases, diet and lifestyle changes, including regular exercise, stress management and self-monitoring with a home blood pressure device, can be used to control and bring down the blood pressure with no side effects. However, if one has elevated blood pressure one will have to take medication to bring it down and then implement lifestyle changes to make sure that the blood pressure stays low. Thus Complementary therapies are very useful in managing this condition.

Categories for Blood Pressure Levels in Adults*

(Ages 18 Years and Older)

	Blood Pressure Level (mm Hg)	
Category	**Systolic**	**Diastolic**
Optimal **	< 120	< 80
Normal	< 130	< 85
High Normal	130 – 139	85 – 89
High Blood Pressure		
Stage 1	140 – 159	90 – 99
Stage 2	160 – 179	100 – 109

Stage 3	= > 180	= > 110

* For those not taking medicine for high pressure and not having a short-term serious illness. These categories are from the National High Blood Pressure Education Program.

** Optimal blood pressure with respect to heart disease risk is below 120 / 180 mm Hg. However, unusually low readings should be evaluated for clinical significance.

When systolic and diastolic blood pressure fall into different categories, the higher category should be used to classify blood pressure level. For example, 160 / 80 mm Hg would be stage 2 Hypertension (high blood pressure).

Cause of High Blood Pressure:

The causes of high pressure vary. According to National Institutes of Health, the causes for high pressure may include narrowing of the arteries, a greater than normal volume of blood, or the heart beating faster or more forcefully than it should. Any of these conditions will cause increased pressure against the artery walls. High blood pressure might also cause another medical problems. Most of the time, the cause is not known. Diet, definitely, plays a crucial role in the development of hypertension along with stress.

- Diet

Hypertension is most closely related to dietary factors, especially the "diet of the civilized society." Many dietary factors have been shown to correlate with blood pressure, including sodium to potassium ratio, percentage of

polyunsaturated fatty acids, fiber and magnesium content, and levels of simple carbohydrates, total fats and cholesterol.

- Weight

Population as well as clinical studies have repeatedly demonstrated that obesity is a major factor in hypertension.

- Lifestyle

Lifestyle factors such as coffee consumption, alcohol intake, lack of exercise and smoking are all things that are very important causes of elevated blood pressure.

- Caffeine

The effects of long-term caffeine consumption on blood pressure have not yet been clearly determined. One large study involving 6,321 adults demonstrated a small, elevation in blood pressure when comparing those who drank five or more cups a day to non-coffee drinkers. Short-term studies consistently showed elevation in blood pressure. But that usually normalize after a few days.

- Alcohol

Alcohol produce acute hypertension in some patients probably via the increased adrenaline secretion. Chronic alcohol consumption is one of the strongest predictors (sodium consumption being the other) of blood pressure.

- Smoking

Cigarette smoking is a contributing factor in hypertension. Smokeless tobacco, i.e. snuff, chewing tobacco and plug, also induces hypertension via its nicotine and

sodium content. Smoking is also positively associated with increased sugar, alcohol and caffeine consumption. Nicotine stimulates the adrenaline secretion.

- Stress

Stress is a causative factor of high blood pressure in many instances. Relaxation techniques such as biofeedback, autogenics, transcendental meditation, yoga, progressive muscle relaxation and hypnosis have all been shown to have some value in lowering blood pressure.

- Exercise

Exercise reduces both stress and blood pressure.

- Heavy metals

Chronic exposure to lead from environmental sources, including drinking water, is associated with increased cardiovascular mortality. Elevated blood levels have been found in a significant number of people with high blood pressure. Cadmium has also been shown to induce hypertension. Persons suffering from high blood pressure are found to have blood cadmium levels three to four times of those in people with normal blood pressure. Cigarette smokers typically have much higher body cadmium levels due to cadmium‘s presence in cigarette smoke.

Some factors associated with an unfavorable outcome in hypertension are:

- Black racial background
- Youth
- Male
- Persistent diastolic blood pressure (i.e. pressure between the pulses, when the heart is relaxed) of greater than 115 mm Hg.

- Smoking
- Diabetes mellitus
- Elevated blood cholesterol levels
- Obesity
- Evidence of end-organ damage, e.g. cardiac enlargement, ECG abnormalities and congestive heart failure
- Other risk factors are: overweight, genetics (those with a family history of high blood pressure have a better chance of contracting hypertension.), high-normal blood pressure (130-139/85-89 mm Hg), high intake of salt and highly stressed lifestyle and poor diet habits.

Conventional Treatments for Hypertension:

Many doctors tend to treat hypertension with drugs. However, National Institutes of Health suggest that physicians carefully weight treatment options, taking into consideration many factors, including the patient‘s age, race and presence of other disorders come with a stepped approach.

The objective is to reduce and maintain a blood pressure level below 140/90 and lower for people with other conditions, such as diabetes and kidney disease.

Step 1

Adopting healthy lifestyle habits is an effective first step in both preventing and controlling high blood pressure. These consist of:

- Reduce weight
- Moderation of alcohol consumption
- Regular exercise

- Adopting a healthy eating plan, that emphasizes fruits, vegetables, and low-fat dairy foods
- Reduce sodium intake
- Quit smoking
- Reduce stress

Lifestyle changes can prevent and control high blood pressure. These include losing weight if overweight (losing 10 lbs can help), increasing physical activity (walking 30 minutes per day can help), following a healthy eating plan, that emphasizes fruits, vegetables, and low-fat dairy foods, choosing and preparing foods with less salt and sodium, and if you drink alcoholic beverages, drinking in moderation.

Step 2:

If the blood pressure dose not respond to lifestyle modifications alone, the physician will go for a combination lifestyle change and first-line antihypertensive medication therapy. (in some cases, especially when the blood pressure is already in dangerous levels, lifestyle modifications are prescribed in conjunction with an antihypertensive medication right from the start.)

Types of Blood Pressure Medications

Here are the main types of drugs used for hypertension. Often, two or more drugs work better than one.

- Diuretics
- Beta blockers
- ACE inhibitors
- Calcium channel blockers (CCBs)
- Alpha blockers
- Alpha-beta blockers

- Angiotensin antagonists
- Nervous system inhibitors
- Vasodilators
- Herbal Drugs

Step 3:

Once the blood pressure is brought down safe levels, slowly reduce the dosage of antihypertensives, and try to maintain the blood pressure with lifestyle interventions. This will minimize the side effects associated with the long-term consumption of these drugs which can be severe in some cases.

Herbal Drugs for Hypertension & atherosclerosis

As complementary supplements to drugs

1- Garlic: one to two raw cloves a day with food or garlic tablets or capsules or regular bases
2- Ginkgo tablets: twice a day for 2-3 months
3- Ginger ½ teaspoonful of fresh ginger into food every day

Name: **Ginger**

Biological Name: ***Zingiber officinale,*** Zingiberaceae

Other Names: Ginger, Ardrakam, Shunthi, Adrak, Sunth, black ginger, race ginger, African ginger, sheng jiang

Parts Used: rhizome

Active Compounds:

1- The dried rhizome of ginger contains approximately 1-4 % volatile oils (Sesquiphellandrene 15 – 20 %). These are the medically active constituents of ginger; they are also responsible for ginger's characteristic odor and taste.

2- The aromatic principles include zingiberene, zingiberone, citral and bisabolene (>30%), while the pungent principles are known as gingerols and shogaols. The pungent constituents are credited with the anti-nausea and anti-vomiting effects of ginger.

Uses:

Diaphoretic, expectorant, antiemetic

Used for the common cold when there is thin white mucus and chills. Fresh ginger is also one of the best remedies for nausea associated with motion sickness and seafood poisoning.

Ginger is used for:

- Artherosclerosis
- Chemotherapy support
- Migraine headaches
- Morning sickness
- Motion sickness
- Nausea and vomiting
- Rheumatoid arthritis

Digestive System Actions:

Ginger is a classic tonic for the digestive tract. Classified as an aromatic bitter, it stimulates digestion. It also keeps the intestinal muscles toned. This action eases the transport of substances through the digestive tract, lessening irritation to the intestinal walls. Ginger may protect the stomach from the damaging effect of

alcohol and non steroidal anti-inflammatory drugs (such as ibuprofen) and may help prevent ulcers.

Anti-nausea/Anti-vomiting Action:

Research is inconclusive as to how ginger acts to alleviate nausea. Ginger may act directly on the gastrointestinal system or it may affect the part of the central nervous system that causes nausea. It may be that ginger exerts a dual effect in reducing nausea and vomiting.

Circulatory Effects:

Ginger also supports a healthy cardiovascular system. Like garlic makes blood platelets less sticky and less likely to aggregate, although not all human research has confirmed this. This action reduces a major risk factor for atherosclerosis.

Ginger is an important herb used in Ayurveda recognizes the following medicinal properties for ginger:

- Analgesic, anti-emetic, aromatic, aphrodisiac, carminative, diaphoretic, digestive, expectorant, nervine, sialagogue, stimulant.

Ayurvedic practitioners consider ginger to be a truly a wonder drug, having so many healing properties. It was called the universal medicine. Taken with rock salt it reduces vayu; with rock candy it reduces Pitta; with honey it reduces Kapha.

Swami Sada Shiva Tirtha in “Ayurvedic Encyclopedia” suggests the folowing medicinal uses of ginger:

“Fresh Ginger: Mixed juice with water and cane sugar, boiled to a syrup-add saffron and powders of cardamom, nutmeg, and clove and preserve well. This ginger-jam is useful for treating indigestion, flatulence, colic, vomiting, spasms, stomach and bowel pains with fever, colds, cough, and asthma.

For indigestion, mix equal parts juice with lemon juice and rock salt, and take just before meals. Taking the juice with rock salt, before meals, cleanses the throat and tongue, and increase the appetite. For bile and delirium due to biliousness, taking ginger juice with cow‘s milk (2:7 ratio), boil to half volume and add rock-candy powder, and take before bed.

Or mix juice with mango juice, cane sugar, and cow ghee; mix and melt to half the quantity and take mornings and evenings.
For nervous headache, mix ginger juice with milk, let dry, and use as snuff.

Dry ginger: with black and long peppers (trikatu) it is a carminative. Added to purgatives, it prevents nausea and the gripe.
For indigestion and low appetite: mix with ghee or hot water.
For painful bowels or stomach: make an infusion of dry ginger, and mix with 1-2 tbs. castor oil. Alternatively, mix some Asafoetida with ginger powder.

For chronic rheumatic pain (Vayu or Kapha), colds, excess mucus, take ginger powder tea before bed, and cover up with blankets to promote sweating.

In cases of headaches, make a paste of ginger and aloe gel or water, and apply to the head and take a nap or before evening sleep. The same paste may be applied to

the face tooth of face aches. For headaches caused by nerves, mix a paste of ginger, cinnamon, castor root, and cloves (equal parts); and apply to the head.

For fainting, apply a thin paste of ginger and water to the eyelids, or place a mix of ginger, black pepper and pippali under the nostrils in small pinches. This will also help stupor, delirium and senselessness caused by brain fever.

Other uses of Ginger: Arthritis, belching, heart disease, laryngitis (use as a tea and an external paste on throat), vomiting, constipation, strengthens memory, removes obstructions in the vessels, incontinence, flatulence, colic, spasms, deranged vayu, and as a diaphoretic.

Dosage:

Most people take 2-4 grams of the dried rhizome powder two to three times per day or a tincture of 1.5-3 ml three times daily.

For treatment of nausea, people try single doses of approximately 250 mg every two to three hours, four a total of 1 gram per day.

For prevention of motion sickness, many people start taking ginger tablets, capsules, or liquid herbal extract two days before the planned trip.

Perhaps the most versatile of herbs, fresh ginger can be topically applied as a warm fomentation to relieve spasms pain and cramps.

Simply cut several slices of the fresh root and place them in a pan of boiling water. Saturate a flannel cloth with the tea and apply it topically as warm as the body will bear. This is an ideal treatment for stiff neck shoulders. The herb is cooked with meat to aid its assimilation and detoxify it. Fresh ginger tea is the most ideal herb

to use for the first signs of mucus, cold, cough, and so on. To make it taste better, add honey. Drinking ginger tea with meals will greatly aid and assimilation and is useful for those with weak, cold digestion.

SAFETY:

Those should not use Ginger with heat sign in the lungs or stomach. Side effects of ginger are rare when used as recommended. However, some people may be sensitive to the taste or may experience heartburn. Persons with a history of gallstones should consult a nutritionally oriented doctor before using ginger. Short-term use of ginger for nausea and vomiting during pregnancy appears to pose no safety problems; however, long-term use during pregnancy is not recommended. A doctor should be informed if ginger is used before surgery to counteract possible post anesthesia nausea.

Name: *Olea europaea* (Oleaceae)

Common Name: OLIVE

Parts Used: leaves, oil.

Constituents: Olives leaves contain oleuropein, oleasterol, and leine. Olive oil contains about 75 % oleic acid, a mono-unsaturated fatty acid.

Medicinal Actions & Uses:

Olive leaves lower blood pressure and help to improve the function of the circulatory system. They are also mildly diuretic and may be used to treat conditions such as cystitis. Possessing some ability to lower blood sugar levels, the leaves have been taken for diabetes.

The olive lea contains Oleuropein, the bitter-principle of green olives, a potent antioxidant at even extremely low concentrations. Oleuropein is able to protect LDL against copper induced oxidation. Oxidation caused free radical damage is a major factor in perhaps all chronic diseases. Olive leaf has compounds that dilate coronary vessels and lower blood pressure. Even the waste water of olive processing is strongly antimicrobial, oleuropein is perhaps the key chemical the olive tree uses to protect itself from foreign invaders.

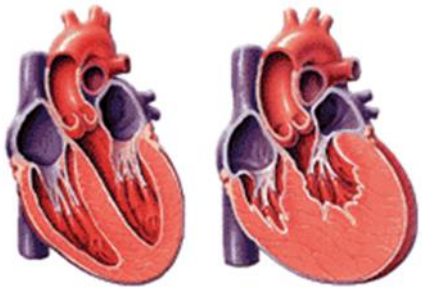
- Kills microorganisms of all types: viruses, retroviruses, bacteria, fungi, yeast, molds, yeast, protozoa, worms, and parasites.
- Relief of arthritic inflammation, especially osteoarthritis and rheumatism.
- Reduction of insulin dosages for better control over the risks of symptomatic diabetes.
- Elimination of chronic fatigue and symptoms associated with the syndrome.
- Promotes energy and stamina
- Normalizes heart beat irregularities.
- Improves blood flow in cardiovascular disorders
- Lessens pain from haemorrhoids.
- Kills free radical
- Kills fungi; infection such as athlete’s foot and jock-itch.
- Permanent relief from malaria, dengue fever, and other topical disease.
- Prevention / treatment of all viral disease, i.e. Epstein Barr, CMV, Herpes, flu, cold, HIV.
- Kills *Candida albicans* and other yeast.
- Kills parasites and worms.

Herbal formula for Hypertension

	%	V.O %	Ash %	Acid Insol Ash %
Olive leaves	30	-	12.0	2.0
Karkadeh	30	-	9.0	1.0
Chamomile	40	0.4	14.0	4.0

0 gm in 150 ml boiled water, left for 5 minutes taken three times daily.

Congestive Heart Failure (CHF)



Normal Heart Congestive Heart

This is a relatively common clinical disorder in which the heart fails to provide an adequate blood flow to the peripheral tissues of the body. It is a serious condition. Some one-half million Americans suffer from CHF; the five-year survival rate of such patients is less than 50 percent. CHF symptoms are associated with one or more of five key pathophysiologic features. These include blood pressure overload, volume overload, loss of heart muscle, decreased contractility, and disturbances in filling of the heart. When such conditions result in reduced cardiac output, several compensatory mechanisms are activated that may sustain performance for a limited period, but without appropriate drug intervention, cardiac efficiency soon declines. The resulting symptoms include both ankle and pulmonary edema as well as ascites.

Herbs Containing Potent Cardioactive Glycosides

During this century, the drugs utilized most frequently by physicians for the treatment of CHF have been obtained from Digitalis, the dried leaves of *Digitalis purpurea* L. and *Digitalis lanata*, the dried leaves of *D. lanata* Erth. These members of the plant family Scrophulariaceae yield several potent cardiac glycosides, especially digitoxin, which is derived from both ,and digoxin, which is prepared only from *D.lanata*. These two glycosides now account for all of the

digitalis prescriptions normally dispensed in the United States. However,a standardized *D. purpurea* leaf preparation, powdered Digitalis, is official in the USP and is still employed, along with similar products, in other countries.

Numerous other plants contain cardioactive glycosides with steroidal structures and physiological functions similar to those of digitalis. Some of these have been used from time to time in the treatment of CHF, but none presents any special advantage over digitalis, so only the names and botanical origins of some of the more common ones are listed here :

Adonis – *Adones vernalis* L.Family Ranunculaceae;

Apocynum or Black Indian Hemp – *Apocynum cannabinum* L. or *A. androsaemifolium* L. family Ranunculaceae;

Black Hellebore – *Helleborus niger* L.family Ranunculaceae;

Cactus grandiflorus – *Selenicereus grandiforus* L. Britt. & Rose, family Cactaceae;

Convallaria or Lily-of-the-Vally- *Convallaria majalis* L.family Convallariaceae;

Oleander – *Nerium oleander* L. family Apocynaceae;

Squill – *Urginea maritima* L.Bak, family Liliaceae; and Strophanthus – *Strophanthus kombe* Oliv. or *S. hispidus* DC, family Apocynaceae.

CHF is a serious disturbance of multiple origins; it requires prompt, accurate diagnosis and careful treatment. The cardiac glycosides are extremely potent drugs, the dosage of which must be carefully adjusted to the needs of the individual patient. In the case of phytomedicines containing them, this is possible only with the standardized powdered Digitalis, a product not readily available in the United States. Because nonprofessional diagnosis and treatment of congestive heart failure are not in the best interest of the patient, the names and sources of the herbal

products employed to treat it are listed here only for the record, and no further details concerning their use are provided.

Digitalis:

The main bioactive materials which are present in digitalis are cardiac glycosides especially:

1-Digitoxin which is given orally, with an onset of action 1-4 hours and give peak activity at 8-14 hours

2-Digoxin which is given orally, with an onset of action 0.5-2 hours and give peak activity at 2-6 hours. Although the digitalis has some advantages, it is not easy available in standardized extracts thus not commonly used

Mechanism of action:

The main bioactive materials which are present in digitalis are cardiac glycosides which combine reversibly with the sodium–potassium ATPase of the cardiac cell membrane resulting in an inhibition of the pump activity. This causes an increase in intercellular sodium concentration. The elevated intercellular sodium concentration favors the transport of calcium concentration into the cell and decrease calcium exodus from the cell, via the sodium-calcium exchange mechanism. The final result is an increase in intercellular calcium which causes an increase in the systolic force of contraction.

Effects of Digitalis

1-Positive inotropic effect

2-Increase calcium concentration in the cardiac muscle

3-Increase contraction of arterial and ventricular myocardium

Hawthorn (*Crataegus* sp.)

The main biological active materials are :

Proanthocianidine, Crataegolactone, Flavonoid (monoacetyl-vitexinrhamnoside and vitexin-rhamnoside), Saponins and Cyanogenic glycosids

Effects:

- Inhibits arrhythmia
- Vasodilator action of blood vessels
- Reduces serum cholesterol and triglycerides
- Decrease peripheral resistant

Mode of action:

The activity of hawthorn is mainly due to the flavonoids anthocyanidins (also known as biflavans or procyanidins). The cardiac improvement is mainly due to inhibition of cyclic AMP phosphodiesterase which leads to positive intotropic. Cyclic AMP is formed from ATP by action of enzyme adenylate cyclase and it is degradated by the enzyme cyclic AMP phosphodiesterase. Hawthorn inhibits cyclic AMP phosphatase and thus increases the intercellular concentration of cAMP within myocardium. The increasing of cAMP lead to protein phosphorylation (via protein kinases) and increased in the force of contraction (positive inotropic effect)

Adverse effect

There is no serious side affects except GIT complains, palpitation, flushing, Headache and vertigo

Preparation and doses

The german commission E. recommends a daily dose of 160-900 mg hawthorn extract with 4-30 mg content in flavonoids and 3-160 mg in oligomeric procyanidins

Herbal Drugs of the Urinary Tract System

Kidney Stones:

Kidney stones are 10 times as common now as at the turn of the twentieth century. This parallels the dramatic increase in the consumption of animal proteins and with it the rise in heart disease, gallstones, high blood pressure and diabetes associated with the standard North American diet. More than 10 % of males and 5 % of females experience a kidney stone during their lifetime.

Kidney stones are usually composed of calcium oxalic acid salt.

Less commonly, stones are made of uric acid and other mixed minerals and amino acids. Determining the type of stone and its cause leads to a better-designed prevention program.

Most kidney stones are preventable. Once you have a stone, no diet or supplement can reverse the problem, but there are still ways to prevent the problem from worsening and recurring.

Studies indicate that diet and nutritional supplement therapy can reduce acute attacks of kidney stones pain. Kidney stones can cause excruciating pain if they become lodged in the passage leading from each kidney to the bladder. Although the pain overrides all the symptoms, usually urinary problems also exist. There is a repeated urging to urinate and urine may contain sediment or blood.

When minerals collect in the kidney and crystallize, stones develop. This is more likely to occur if the urine is highly concentrated, since it contains more substances capable of crystallizing. Drinking too little fluids force the kidneys to work harder and leads to more concentrated urine. Drinking plenty of fluids is an important course of action to prevent kidney stones. A diet high in animal protein can also increase urine concentration. Studies show that vegetarians are less likely to suffer

from kidney stones. It is also important to remember that any infections which interfere with the flow of fluids (such as a urinary tract infection) will increase susceptibility to recurring stones.

Although there is a connection between calcium and kidney stones, eating high-calcium foods does not always cause stones. There are even times when calcium helps prevent them. What makes the difference between a calcium-friendly food and one that is not is how well the body absorbs the calcium. If calcium absorption from the diet is adequate then the body does not need to dissolve calcium in the bone, which then raises the calcium level in the blood.
When this blood gets filtered through the kidneys, calcium deposits form.

Kidney stones are liable to reoccur if steps are not taken to improve your diet. There are certain minerals and herbs that can improve kidney functions and subsequently, lower the chances of future reoccurrences of kidney stones.
The mineral magnesium is very effective at protecting the kidneys from calcium deposits. There are many different herbs which are used for strengthening and protecting the kidneys.

People suffering from kidney stones and those wishing to prevent them can benefit from a high-fiber, low meat and high vegetable diet. Eating too much meat produces metabolic by-products of animal proteins such as uric acid and oxalic acid, both of which are involved in kidney stone formation. Red meat, in particular, is very high in phosphorous and cause the body to excrete more calcium into urine. This is why people with low meat, high vegetable diets have a forty to sixty percent less chance of forming kidney stones, compared to people who have high

meat diets. Inner colon and kidney cleanses are very effective in the promoting the functioning and overall health of the kidneys.

Herbal Drugs in Kidney Diseases

1- Name: Khella

Fruits of *Ammi visnaga*. Family Apiaceae.

Small grayish brown, ellipsidal, ovoid to pear shaped, cremocarp, split into 2 mericarp are 1.5 to 3 mm long and 0.9 mm blood avoid, flattened on the commisural surface. They are glabrous, 5 lighter coloured prominent ridges and the upper and a brownish yellow style podium bearing the remains of the stigma with a bitter taste and slight aroma.

2- Name: *Ambrosia maritime*

FamilyAsteracae

An annual herb growing along Mediterranean coast from Alexandria to Marsa Matrooh.

It has a dissected compounds leaf, and panicle of senile flower at the top of the branches.

It has a very bitter taste.

Constituents :

-Ambrosin, damsin

-Volatile oil

Spasmolytic action:

Urinary tract ambrosin

damsin

heart ambrosin, damsin

intestine,

uterus

urine volume increased

Na ions increase in urine

Urinary tract antiseptic Marked antimicrobial

Anti inflammatory

Dose: herb 0.5 g.

Side effects: lower blood sugar in the first hour then a great rise to 100 mg. in the next three hours. A risk to DIABETIC patients.

3- Name: *Cymbopogon proximus*

Graminae. Poaceae

A bitter tasting grain, growing up to 1.5 meter, with spiny surface, narrow leaf blades.

It is native to Upper Egypt, North Sudan.

It has an aromatic odour, very bitter taste

Constituents: volatile oil 0.55 %

- proximadiol (per hydro naphthalene) bitter principle.

% in Pet ether extract 0.20

% in ether extract 0.26

- β sitosterol, α amyrin

proximadiol mp 141^0 - 142^0

4- Name: Corn Silk

Biological Name: *Zea mays*

Graminae. Poaceae

Parts Used: Stigmas from the female flowers of maize. Fine soft threads 4-8 inches long. (silk)

Habitat--- Sub-tropical countries of the world, and cultivated in warm climates.

5- Name: Parsley

Biological Name: *Petroselinum crispum*, Umbelliferae (Apiaceae)

Other Names: Parsley, garden parsley, rock parsley, common parsley, march

Parts Used: The tap root, leaves and seeds

Active Compounds:

- Volatile oil, containing apiole, myristicin, b-phellandrene, p-mentha-1,3,8-triene, 4-isopropenyl-1-methylbezene, 2-(p-toluyl) propan-2-ol
- Coumarins
- Flavonoids
- Phthalides
- Vitamins

Uses:

Diuretic, expectorant, emmenagogue, carminative, anti-spasmodic, hypotensive, aperient.

The fresh herb is a rich source of vitamin C. Medicinally, Parsley has three main areas of usage. First, it is an effective diuretic, helping the body get rid of excess waste. The second area of use is as an emmengogue stimulating the menstrual process. It is advisable not to use parsley in medicinal dosage during pregnancy as there may be excessive stimulation of the womb. The third use is as a carminative, easing flatulence and the colic pains that may accompany it.

CAUTION: Do not use during pregnancy in medicinal dosage.

Dosage:

Infusion: Pour a cup of boiling water onto 1 – 2 teaspoonfuls of the leaves or root and let infuse for 5 – 10 minutes in a closed container. This should be drunk three times a day.

Tincture: take 1 – 2 ml of the tincture three times a day.

Safety :

Do not use parsley if you have a kidney infection.

Constituents. Volatile oil

	Herb	**Fruit**
	0.2	3.2
	Yellow	Yellow orange
	Turbid	Clear
	%	**%**
α pinene	1.1 %	10.2 %
Myrcene	14.5 %	0.8 %
β phellandrene	12.9 %	9.6 %
1,2,8 p. mentha Triene	10.67 %	

Myristicin	26.83 %	11.90 %
Apiol	5.7	33.0
Terpinolene	1.90 %	0.04 %
Carvacrol	1.34 %	0.80 %
Caryophyllene	2.07	0.06
farnesene	1.87	-
Isoborneol	1.90	-

6- Name: Lemon grass

Biological Name: *Andropogon citrates*, Poaceae

Others Names : Lemon grass, Gandhatrana, Hari-chaha, Bhutrin

Parts Used : herb, essential oil

Uses:

Antispasmodic, diaphoretic, diuretic, emmenagogoue, stimulant;

Oil: carminative, refrigerant, stomachic, tonic

Bowel spasms, colic, diarrhoea, dysmenorrheal (neuralgic), fever, gas, colds,

G.I. spasms, intestinal mucus membrane tonic and stimulant; vomiting.

Oil/external-bath, perfume, and hair oils; with coconut for lumbago, rheumatism, neuralgia, sprains, pains, ringworm; excellent tea for Pitta and kidneys.

- Volatile Oil

West Indian : 0.2 – 0.4 % on fresh grain

Oil contains citral 65 – 85 %, myrcene 12 – 20 %

East Indian : 0.5 % on fresh grain

citral 70 – 85 % major component.

Other components: geraniol, methy eugenol , borneol (in some strains) in addition to othercomponents of west Indian oil; methyl heptanone, β dihydio pseudo ajonone, linalool, methyl heptanol, α terpineol, nerol, geraniol, farnesol, citronellol., aldehydes, citronellal, decanol, farnesal,

Volatile acids: isovaleric, geranic, caprylic, citronellic acids

Other constituents : alkaloid , saponin, β sito-sterol, hexacosanol, triacontanol, cymbogenol.

Dosage: Infusion or decoction of leaves, powder 1 gm.

7- Name: Couchgrass

Biological Name: *Agropyron repens*

Graminaceae: poaceae

Other Names: Couchgrass, Twitchgrass, Quickgrass, Doggrass

Parts Used: The rhizome

Active Compounds:

- Carbohydrates; triticin, a fructosan polysaccharide, inositol, mannitol & mucilage
- Volatile oil, mainly of agropyrene
- Miscellaneous; vanillin glycoside, vitamin A and some of the B complex, fixedoil, minerals including silica and iron.

Uses:

Diuretic, demulcent, anti-microbial.

Couhgrass may be used in urinary infections such as cystitis, urethritis and prostatitis. Its demulcent properties soothe irritation and inflammation. It is of value in the treatment of enlarged prostate glands. It may also be used in kidney stones and gravel. As a tonic diuretic, Couhgrass has been used with other herbs in the treatment of rheumatism.

For urinary tract infections, couchgrass may be used with Buchu, Bearberry or Yarrow. It can be combined with Hydrangea for prostrate problems.

Dosage:

Decoction : put 2 teaspoonfuls of the cut rhizome in a cup of water, bring to boiling and let simmer for 10 minutes. This should be drunk three times a day.

Tincture: take 2 – 4 ml of the tincture three times a day.

8- Name: Yarrow

Biological Name: *Achillea millefolium*

Compositae: Asteraceae

Other Names: Yarrow, Milfoil, nosebleed, herb militaris, soldier‘s woundwort, thousand leaf, thousand seal, field hop, millefolium, oild man‘s pepper, thousand seal, ladies ’manthle

Part Used: Aerial parts

Active Compounds:

- Volatile oil, containing a- and b- pinenes, borneol, bornyl acetate, camphor, caryophyllene, eugenol, farnesene, myrcene, sabinene, salicylic acid, terpineol, thujone and many others, and including the sesquiterpene lactones. Many samples contain high concentrations of azulenes, up to about 50 %, including chamazulene and guajazulene.

- Sesquiterpene lactones; achillin, achillicin, hydroxyachillin, balchanolide, leucodin, millifin, millifolide and many others.
- Alkaloids and bases; betonicine (=achilleine), stachydrine, achiceine, moschatine, trigonelline and others.
- Miscellaneous; acetylenes, aldehydes, cyclitols, plant acids etc. The volatile oil, which is rich in sesquiterpene lactones, gives yarrow its anti-inflammatory activity. Alkamides (which are also found in echinacea) may further reduce inflammation.

Action:

The aqueous extract is an anti-inflammatory due to the balanced mixture of carbohydrates protein that had very less toxicity. It has a soothing anti-inflammatory effect.

The bases present are hypotensive, osmotic diuretic by the effect of sugar alcohol sugars. Bitter principle are spasmolytic, useful in bloody urine (haematurea).

Flavonoids are anti-inflammatory, vascular protective.

Tannins are astringent & mild diuretic.

Diaphoretic, hypotensive, astringent, anti-inflammatory, diuretic, anti-microbial, bitter, hepatic, tonic, alterative, vulnerary.

Useful For:

- Common cold/sore throat
- indigestion and heartburn
- inflammation
- menstruation, painful (dysmenorrhea)

Yarrow is one of the best diaphoretic herbs and is a standard remedy for aiding the body to deal with fevers. It lowers blood pressure due to a dilation of the peripheral vessels. It stimulates the digestion and tones the blood vessels.

As a urinary antiseptic it is indicated in infected in infections such externally it will aid in the healing of wounds. It is considered to be a specific in thrombotic conditions associated with hypertension.

Animal studies have shown that this herb can reduce smooth muscle spasms, which might explain its usefulness in gastrointestinal conditions. The alkaloid obtained from yarrow, known as achilletine reportedly stops bleeding in animals.

Traditional herbalists recommends this herb applications such as: hot, dry burning skin, at the beginning of acute asthenic fevers, with suppressed secretion; deficient renal action, with renal or urethral irritation; acute or chronic Bright‘s disease in its incipient stage. Leucorrhoea with relaxed vaginal walls. Menorrhagia and amenorrhoea; hemorrhoids with bloody discharge, atonic gastric and intestinal dyspepsia; passive hemorrhages. In addition he recommends it for the following pathologies: haematuria, uterine hemorrhage intestinal irritation, Leucorrhoea, fevers, ureamia, oedema, tonsillitis, epididymitis.

Combinations: For fevers it will combine well with Elder, Flower, Peppermint, Boneset and with Cayenne and Ginger. For raised blood pressure it may be used with Hawthorn, Linden Flowers and European Mistletoe.

Yarrow is often put in the category of “bitter herbs” because of the powerful, volatile oil it contains. This oil, called Achillein, together with tannin (tannic acid), gives a stimulating, astringent, and bitter edge to the flavor and action. These properties, along with many others, act on the liver to strengthen its efficiency and stimulate bile production. Yarrow also functions as a strong

antiseptic and viral inhibitor. Yarrow‘s action as an astringent means that it firms and tones tissues, including the tissues of internal organs that might have become flaccid, inefficient, or tired out by abuse from unhealthy habits and/or a toxic environment. While Yarrow tones the tissues, its stimulating property also rehabilitates the body‘s systems into renewed alertness and immunity.

As an antiseptic and antiviral agent, Yarrow kills many harmful microorganisms upon contact. Its volatile oil collects and absorbs many impurities (I think of it as gathering the toxins into little packets) and then, somewhat like a detergent, breaks down these “corralled” toxins into forms much easier for the body to eliminate without the usual illness symptoms. In many ways, Yarrow‘s inhibiting action is similar to an oil spill clean up job.

The best way to activate the healing properties of Yarrow is to make a water extract, otherwise known as tea. If you want the most potent results from any bitter herb, including Yarrow, it is best not to add any sweetener to it. But, if you have not yet developed a taste for Yarrow and feel you need to sweeten it, please use a little raw honey and forgo the use of any other type of sweetener. When you are steeping the Yarrow to make tea, be sure to do this in a covered pot to preserve the volatile oils and protect them form evaporating. If you start with freshly gathered undried Yarrow blossoms or leaves, you must simmer them (rather than steeping them) as slowly as possible, covered, to make the tea.

The active properties in Yarrow, can also be extracted in an alcohol-based tincture (a way of making a concentrate) that may be convenient for use with children, while travelling, or for immediate use when making tea is not possible.

Dried Yarrow blossoms is used and this is the part of the herb that is commonly found in an herb store. However, the leaves and stems are also potent and could be used medicinally.

Yarrow grows all over the United States and in many parts of the world.

Some people find that there is an herb that is "their" herb – they immediately reach for to rebalance the whole systems if anything feels as if it might be going wrong. Use one cup of Yarrow tea a day as a tonic.

Use Yarrow, 1 to perhaps 4 cups of tea a day, as a continuing tonic to promote menstrual health and balance. A Yarrow poultice placed on the abdomen over ovaries and uterus, one to three times a week, is an additional aid. If menstrual cramping is a problem, a calcium lactate or calcium gluconate supplement, added to the diet on a daily basis or at least during the week before and during the menstrual flow, further enhances the benefits of the Yarrow herb.

Many women find that adding an electrolyte juice of some sort during and/or just prior to the menstrual flow lessen or stops menstrual pain. however these last two are only suggested in addition to the Yarrow as helpful "extras."

Yarrow, can be used for: menses that are too heavy or too light; spotting between cycles; erratic cycles; weakness/faintness; hot or cold flashes corresponding with ovulation or menses, and persistent menstrual cramping
(helpful to add calcium for this last one).

Dosage:

Infusion: Pour a cup of boiling water onto 1-2 teaspoonfuls of the dried herb and leave to infuse for 10-15 minutes. This should be drunk hot three times a day. When feverish it should be drunk hourly.

Tincture: take 2-4 ml of the tincture three times a day.

Immune System Diseases

Immune Deficiency:

The immune system **enables the body to fight off illness and infection** on a daily basis. While we are usually unaware of it, we are constantly surrounded by a multitude of viruses, bacteria, microbes, parasites, and toxins that pose a potential threat to our health. The immune system is composed of the lymphatic vessels and organs (slpeen, tonsils, lymph nodes), white blood cells, specilized cells residing in various tissues (macrophages, mast cells, etc..) and specialized chemical factors like complement, interferon and interleukin).

Like most other important body systems, the immune system goes about its important job without any thought and effort on our part. It is usually only when things go wrong that we realize just how **essential the immune system is**. Varying in degrees of severity, immune deficiency can be thought of as a condition where **the body's defense system is compromised,** causing it to be less resilient to foreign invading cells. Abnormal cells which develop inside the body systems may also multiply and cause illness if the immune system is compromised.

Causes of Immune Deficiency:

Immune deficiency may occur for any number of reasons:

The after-effects of previous illness or infection.

The consequences of an unbalanced lifestyle that does not sufficiently support immune system functioning like poor diet, stress, not enough sleep, poor hygiene habits.

The effects of medication

The result of a number of serious medical conditions known as immunodeficiency disorders.

Certain illnesses have also been known to weaken the immune system such as chicken pox, measles, tuberculosis, chronic hepatitis, and certain types of cancer. Injuries such as burn trauma or surgery also tend to lower the immune system's first line of defense (the skin and protective membranes), as the body has to split much of its energy and resources between healing and fighting off infections.

Effects of an Unbalanced Lifestyle:

Poor Diet: Malnutrition and an unbalanced diet are leading causes of a lowered immune system. Research has shown that poor nutrition compromises the lymphatic system, making the body more vulnerable to infection and disease. **Nutritious diet** rich in fresh fruits, and vegetables, whole-grains, legumes and natural oils, can help the body to be strong and have natural immune responses. Also try to avoid excess amounts of "bad foods" such as sugars, animal fats, and highly refined foods, as they tend to weaken the immune system.

Stress: Many studies have shown that **stress has a remarkably powerful effect on the immune system**.

Not enough sleep: Too little sleep or poor quality sleep weakens the immune system, leaving the body more susceptible to other diseases and disorders. While it is not fully understood, **people who suffer from sleep disturbances tend to have weaker immune functioning** than those who get between 7 and 8 hours of sleep each night.

Poor hygiene habits: Simple hygiene habits such as **washing hands regularly** and keeping a **clean living environment** go a long way in helping the immune system protect us from potentially hazardous organisms.

Effects of Certain Medication:

Some medications, particularly **immunosuppressant medications** such as corticosteroids or medications used after organ transplants, have an adverse effect on the immune system. While suppressing the immune system is the purpose of these medications, it leaves the body open to all sorts of other infections and illnesses.

Chemotherapy also often reduces the body's defenses for some months, both during and after treatment. This is due to the fact that chemotherapy reduces the white blood cell count, which is an essential element of the immune system.

Regular use of antibiotics may also contribute to a weakened immune system – due to the drugs themselves, and because they do not afford the immune system an opportunity to deal with the invading organisms and thus strengthen itself.

Serious Medical Conditions:

There is a group of **immune-related disorders** known as immunodeficiency disorders example HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome). This is where the immune system response is severely reduced or absent altogether. These disorders can be divided into two categories – *Primary* (or congenital) immunodeficiency disorders which are rare genetic defects that an individual is born with or pre-disposed to, or *acquired* immunodeficiency disorders, which are caused by external causes such as illness, malnutrition, or injury.

Natural Herbal and Homeopathic Remedies for the Immune System

There are many natural drugs which are able to enhance and stimulate the immune system, leading to cure for many diseases. The following are example for some

immune enhancers: Echinacea (Echinacea purpurea), Black seed (Nigella sativa), Ginger (Zingiber officinalis), Turmeric (Curcuma longa), Ginseng (Panax ginseng), Garlic (Allium sativum), Astragalus membranaceous, Inula helenium and Withania somnifera.

Certain herbal and homeopathic remedies have been used as support for immune deficiency treatment for thousands of years, with great effect. Herbs such as Echinacea purpurea, Echinacea pallida, E. angustifolia are well-documented for their antiviral, anti-fungal, and antibacterial properties, as well as their ability to strengthen and assist the immune system. These herbs have a tonic effect for the immune system and are often taken to prevent illness and assist recovery. Remember that therapeutic dosage is important when using herbal medicines – so ensure that you source them from a reputable company.

Echinacea (Purple cone flower):

Origin :It is the root, aerial portion or whole plant of *Echinacea angustifolia*. E. purpurea and E. pallida. Fam. Asteraceae.

Constituents:

Polysaccharides: Inulin and the high molecular weight polysaccharides. Typically the most potent immune-enhancing polysaccharides are the water-soluble, acidic, branched-chain heteroglycans composed of many types of sugars rather than the polyfructose content of inulin.

Flavonoids: Caffeic acid derivatives; essential oils; polyacetylenes and alkylamides.

Actions and Uses:

Bacterial, viral and protozoal infections including infections of the digestive, respiratory and urinary tracts; mild septicaemia; states of weakened, suppressed or imbalanced immunity, inflammatory and purulent conditions, including acne,

abscess, furunculosis. Topically for treating poorly healing wounds, inflammed skin conditions and bacterial infections.

Contraindications:

Individual with auto-immune disease.

Gastritis and peptic ulcer.

Tuberculosis, multiple sclerosis and other progressive systemic diseases.

Allergic reactions possible in those allergic to the daisy family.

Doses:

Dosages should be given three times daily:

Dried root (or as tea): 1 to 2 g.

Freeze- dried plant: 325 to 650 mg.

Fluids extract (1:1) :1 to 2 ml (1/4 to 1/5 tsp.).

Solid extract :100 to 250 mg.

Black seed:

Black cumin, *Nigella sativa*.

Constituents:

Volatile oil, up to 1.4%, thymoquinone (the major component of the volatile oil), nigellone (carbonyl polymer of thymoquinone, $C_{18}H_{22}O_4$); fixed oil (27 – 40%); alkaloids: Isoquinoline, indazole alkaloids and saponins

Actions and Uses:

Seeds extracts of Nigella sativa exhibit antispasmodic, anti-inflammatory, CNS depressant, analgesic, insecticidal, antibacterial, bronchodilator, hypotensive, anti-diabetic, anti-oxidant, hepatoprotective activites and immunostimulant properties.

Effects on immune system:

The extract of Nigella sativa seeds when used properly is useful in treating cancer, preventing toxicity of anticancer drugs in human body (i.e. it protects the bone marrow against the chemotherapy and at the same time it can act as anti-cancer agent), protecting the normal cells from the cytopathic effects of the virus and in increasing immune function (increases antibody producing B cells).

Nigella sativa seed extract also has been found to help restore immune competent cells in immunosupressed cancer patients and to over stimulate bone marrow formation in normal individual.

Additionally, the serum interferon level is found to increase; and hence, the Nigella sativa extract has interferon like antiviral activity. The is an example of interferon level increasing in the circulation, preventing viral diseases and in addition possibly curing viral diseases.

Nigella sativa promotes anti-tumor activity. Data from pharmacosensitivity screening indicates anti-tumor activity of Nigella sativa seeds extracts mainly against melanoma and colon cancer types Nigella sativa seed extract destroys tumor cells and leaves normal cells alone possibly because of its ability to bind to cell surface asialofeutin (lectin) in diseased cells, which causes aggregation and clumping of tumor cells.

Dosage:

Immune enhancer: 1 g twice daily; as anticestode : 40 mg/kg dosage and preferably about 30 g per day to protect against viral attack in virus endemic areas.

Astragalus:

(*Astragalus membranaceus*, Fam. Fabaceae): known in chinese medicine as Huang. The clinical study confirms the use of Astragalus as immuno-stimulant for use in colds and upper respiratory infection and as prophylactor. It contains

trierpenoid saponins, isoflavones, as well as, polysaccharides. It also has antiviral, anti-oxidant and hepatoprotective activities.

St. John's wort is also used as immuno-stimulants. (previously described)

Skin Diseases

The skin is the largest organ of the body and accounts for about 16 percent of a person's body weight. It is flexible, waterproof, and covers the entire outside of the body. It performs several important roles, including acting as a barrier, regulating influence between the outside environment and the controlled environment within our bodies, as well as providing assistance to the liver, kidneys, and intestines in the removal of waste.

Core functions of the skin:

Provides a protective, external covering for the body against heat, light, injury and infection

Acts as a mechanical barrier to infections and prevents microorganisms and other substances from entering the body, further enhanced by its anti-infective secretions

Keratin layers in the epidermis together with sebum produced by the sebaceous glands act as a waterproof barrier

Sensory organ for touch, heat, cold, socio-sexual and emotional sensations

Regulates body temperature

Finger and toe nails protect the extremities of the fingers and toes from damage

Prevents tissue fluid loss from the body

Synthesizes vitamin D in the presence of sunlight and ultra violet radiation

Excretes waste products and excess salt from the body.

If the skin fails in of one these functions, there can be serious consequences for the individual. Because so much importance is attached to our appearance (and therefore the skin), any skin problems can also have a major psychological and social impact on the person affected. This makes it vitally important to support skin health on an ongoing process.

For many years, people have made use of synthetic ingredients and chemicals in skincare and cosmetics. Nowadays, people are becoming more proactive about their health, and there is an increasing demand for pure, natural products for skincare and cosmetics, as well as an awareness of the importance in supporting skin health via systemic support.

Acne.

Eczema.

Psoriasis.

Anal Itch.

Skin ulcer.

Burns

Wound healing

Acne:

Is a skin disease caused by changes in the pilosebaceous units (skin structures consisting of a hair follicle and its associated sebaceous gland). Acne is most common during adolescence. For most people, acne diminishes over time and tends to disappear or at the very least decrease after one reaches his or her early twenties.

Acne develops as a result of blockages in follicles. Hyperkeratinization and formation of a plug of keratin and sebum (a microcomedo) is the earliest change. Enlargement of sebaceous glands and an increase in sebum production occur with increased androgen (DHEA-S) production at adrenarche. The microcomedo may enlarge to form an open comedo (blackhead) or closed comedo (whitehead). Whiteheads are the direct result of skin pores becoming clogged with sebum, a naturally occurring oil, and dead skin cells. In these conditions the naturally

occurring largely commensual bacteria Propionibacterium acnes can cause inflammation, leading to inflammatory lesions (papules, infected pustules, or nodules) in the dermis around the microcomedo or comedo, which results in redness and may result in scarring or hyperpigmentation.

Causes of acne:

Family or Genetic history. The tendency to develop acne runs in families. For example, school-age boys with acne often have other members in their family with acne as well. A family history of acne is associated with an earlier occurrence of acne and an increased number of retentional acne lesions.

Hormonal activity, such as menstrual cycles and puberty. During puberty, an increase in male sex hormones called androgens cause the glands to get larger and make more sebum.

Inflammation, skin irritation or scratching of any sort will activate inflammation. Anti-inflammatories are known to improve acne.

Stress, through increased output of hormones from the adrenal (stress) glands, although modern tests have said otherwise and point to this not being a cause.

Hyperactive sebaceous glands, secondary to the three hormone sources above.

Accumulation of dead skin cells.

Use of anabolic steroids.

Any medication containing lithium, barbiturates or androgens.

Exposure to certain chemical compounds namely Chlorinated dioxins.

Exposure to halogens. Halogen acne is linked to exposure to halogens (e.g. iodides, chlorides, bromides).

Specific Herbs for Acne:

Aloe gel has astringent & antibacterial properties and is applied topically.

Calendula promotes healing of skin tissue. You can make a strong infusion of this herb and use as a facial was or steam. It is also available in creams.

Lavender compresses are used to relieve inflammation.

Rosewater is applied topically for pain & inflammation.

Tea tree oil is a powerful antiseptic but must be diluted before applying to skin.

Witch Hazel has antibacterial & astringent properties.

Echinacea tincture taken internally promotes healing, reduces inflammation.

Goldenseal is an antimicrobial which stops oozing.

Another common cause of outbreaks is a sluggish liver. When the liver is not functioning optimally it cannot clear excess hormones. When trying to clear acne it is important to balance the hormones and cleanse the liver.

Dandelion contains insulin which improves the skin by removing bacteria.

Milk thistle is the most commonly used herb for cleansing and strengthening the liver. It also helps remove excess hormones through the stool by stimulating bile production.

Traditionally this condition has responded well to a combination of herbs. When treating acne it is important to take a two-fold approach: Internally and Topically.

Generally speaking, just treating the skin topically does not address the internal causes of acne and skin eruptions.

Internally, a good combination for cleansing the liver and blood would be a tincture of **Milk Thistle** and **Dandelion**. The traditional dosage is 30 drops in a little water 3 times daily.

Topically, you can combine any number of herbs such as **Calendula**, **Lavender**, **Tea tree** oil, Witch Hazel and Rosewater, depending on the specific condition of your skin.

Eczema:

Eczema is a chronic skin disorder characterized by itching rashes, which may be red, scaly, dry, or leathery. There may be skin blisters with oozing and crusting. It is a common inflammatory condition of the skin. Many skin diseases cause symptoms similar to those of eczema, so it is important to have the disease properly diagnosed before it is treated.

Symptoms:

Scaling, thickened patches of skin can become red characterize eczema. It may also appear as tiny blisters (called vesicles) that rupture, weep and crust over. The most troublesome and prevalent symptom of eczema is itching, which may be constant.

Gels and creams made from herbal extracts of Chamomile, Licorice, and Witch hazel have been explored to reduce symptoms of eczema. The following are examples of herbs used for eczema:

Rosemary (*Rosmarinus Officinalis*) In North Africa the young shoots of the plant are used to prepare aromatic baths. The oil was used in preparation of ointments to soothe sprains, bruises, wounds and eczema. It was also used in lotions and penetrating liniments as a stimulant to improve the circulation for the scalp and also to fight dandruff and hair loss.

Witch hazel:

Origin: Leaves and barks of *Hamamelis virginiana* (Fam. Hamamelidaceae).

Constituents: Tannins and volatile oils are the main active constituents.

Action: Tannins have a strong astringent effect that strengthens veins and have is anti-inflammatory effect. Topical creams are currently used for eczema.

Doses: Steeping 2-3 grams of the leaves or bark in 150 ml of boiled water for 10 to 15 minutes can make tea of witch hazel. Drink two to three times daily between

meals. A tincture, 2-4 ml three times per day, is also occasionally used. In combination with warm, moist compresses, witch hazel extracts can be applied liberally at least twice each day (in the morning and at bedtime) on hemorrhoid. For other skin problems, ointment or cream can be applied three of four times a day, or as needed.

Side effect: With internal use, it may cause stomach irritation and cramping. In particular, it should not be taken internally in combination with medications, supplement or herbs containing alkaloids, as the tannins in Witch hazel may interfere with absorption.

Oak:

Origin: The bark of Quercus alba and other Quercus species . Family Fagaceae.

Active constituents: Tanins (Ellagitannins), are the primary constituents of oak bark.

Doses: 3\4 teaspoon (3grams) of the bark per day. Oak is applied topically by first boiling 1-2 tablespoons (15-30 grams) of the for fifteen minutes in 2 cup (500 ml) of water. After cooling, a cloth is dipped into the liquid and applied directly to the rash several times per day. The liquid prepared this way in the morning can be used throughout the day. Unused portions should then be discarded.

Side effects: Oak bark is rarely associated with side effects.

Malva species:

Mallow flowers (*Malva sylvestris* L.Malvaceae): Is a demulcent and pectoral, it contains mucilages, sulphated flavonol glycosides e.g. gossypin-3-sulphate and antocyanins (e.g. malvin, malvidin glycoside and delphindin). An influsion is used for colds and coughs and the mucilage of leaves is anti-inflammatory with anticomplement activity .

Discorea

Wild yam contains diosgenin, a saponin precursor in the synthesis of progesterone. The tubers of Discorea floribunda, D. composita and D. deltoida provide 50% of the raw material diosgenin for steroid synthesis.

Stigmasterol and β-sitosterol of Soya bean, solasodin in Solanum species are also used.

Gamma-linolenic Acid: Gamma-linolenic acids (GLA), such as evening primrose oil and borage oil, are a type of essential fatty acid. GLA has been shown to correct deficiencies in skin lipids that can trigger inflammation, which is why it is thought to help with eczema. However, recent, well-designed clinical studies with GLA have generally found that it does not help with eczema.

Psoriasis:

Psoriasis is a non-contagious skin disorder that most commonly appears as inflammed swollen skin lesions covered with silvery white scale. Among several types of Psoriasis, there is Plaque Psoriasis, which is characterized by raised, inflammed (red) lesions covered with a silvery white scale. The scale is actually a buildup of dead skin cells. There is also Guttate Psoriasis characterized by small red dots of psoriasis, which may have some scales. Is a poorly understood condition that affects primarily but may also affect nails. A related condition, psoriatic arthritis, affects joints. The fact that some people with psoriasis improve while taking prescription drugs that interfere with the immune system suggests that the disease might result from a derangement of the immune system. A dermatologist should be consulted to confirm the diagnosis of psoriasis.

Causes:

The cause of psoriasis is unknown. In psoriasis, areas of the skin grow much faster than normal and form red, scaling patches. The scalp, elbows, and knees are the

most common sites for psoriasis, however any part of the skin may become involved. Psoriasis is a problem only because it itches and is unsightly. If the skin is traumatized, psoriasis can form in the affected area.

Symptoms of psoriasis:

Red patches of the skin covered by a silvery, flaky surface of that that has pinpoint stops of bleeding underneath if scraped.

In some people with psoriasis, the fingernails and toenail may have white-coloured pits, yellowish sports or may be thickened or may separate at the cut end.

Herbs for Psoriasis:

Capsicum:

Origin: Fruits of *Capsicum annuum*, Capsium frutescens, Fam. Solanaceae.

Active constituents: Resinous and pungent substance known as capsaicin.

Action: Topical application of capsaicin relives pain and itching by acting on sensory nerves. Capsaicin temporarily depletes "substance P", a chemical in nerves that transmits pain sensations. Without substance P, pain signals can no longer be sent. The effect is temporary. Topically applied capsaicin creams are helpful for a range of conditional pain, Psoriasis, and rheumatoid arthritis.

Doses: Topical creams: 0.025 to 75% capsaicin is generally applied to the affected area there or four times per day. A burning sensation may occur the first serveral times the cream is applied. However, this should gradually decrease with each use. The hands must be carefully and thoroughly washed after use, or gloves should be worn, to prevent the cream from accidentally reaching the eyes, nose, or mouth, which would cause a burning sensation. Do not apply the cream to areas of broken skin.

Aloe:

Origin: It is mucilaginous obtained from the central part of the leaf of *Aloe vera*. Fam. Liliaceae.

Constituents and actions: Mucilage (heteropolysaccharide), help promote skin healing by antimicrobials and immune-stimulating actions. Topically, it is not yet clear which constituents are responsible for the wound healing properties of aloe. Studies suggest that its polysaccharides, help to promote skin healing by anti-inflammatory, antimicrobial, and immune-stimlating actions. Aloes effects on the skin may also be enhanced by its high concentration of amino acids, as well as vitamin E and vitamin C, zinc, and essential fatty acids.

Use: Aloe gel is applied to the affected area of skin three to five times per day.

Anal Itch:

Anal itch can be defined as an **intense itching around the anal tissue.** The itch can be so insistent that resisting the urge to scratch may be difficult or impossible. This can understandingly become an extremely uncomfortable situation and many times people suffering from anal itch feel embarrassed to talk about it with their doctors.

Anal itch is also known as pruritus ani. **Treatment for anal itching** is normally prescribed after establishing the underlying cause of symptoms.

Symptoms of Anal Itch: The symptoms and signs of anal itch include:

Recurring itch around the anal area

Burning

Irritation

Causes of Anal Itch:

Dry skin. Dry skin is a common cause for itchiness, especially in areas where the skin is most delicate.

Excessive moisture. Moisture from sweating can be irritating. Anal itching can also be caused by fecal incontinence and frequent diarrhea.

Excessive washing. Wiping and excessive scrubbing can cause anal itching.

Chemical irritants. Soaps, colognes, douches and birth control products contain chemicals that can irritate skin in and around your anus. Scented or colored toilet paper can be irritating to people with sensitive skin.

Food irritants. Anal itching may be the result of irritating chemicals present in certain foods and condiments, such as chili peppers or hot sauce.

Medications. Anal itch may occur as a side effect of certain medications such as antibiotics.

Overuse of laxatives. Improper use of laxatives can lead to chronic diarrhea, anal irritation and itching.

Hemorrhoids. Anal itching can be a symptom of hemorrhoids. However, most hemorrhoids don't itch.

Anal fissures. These tiny tears that occur in the anus for a number of reason may cause itchiness.

Infections. Sexually transmitted diseases can cause anal itching. Parasites can also cause persistent itching around the anus.

Thrush. Fungal infections in the genital area can cause anal itch.

Skin disorders. Skin conditions including psoriasis, seborrhea and eczema can irritate the area in and around your anus, causing anal itch.

Other causes. Anal itching may also be caused by anxiety or stress.

Natural ways of preventing and relieving anal itch:

A lot can be done to naturally **maintain and promote anal skin health.** It is a good idea to **support overall systemic balance** by eating lots of fresh fruit and vegetables and whole grain foods, ensuring plenty of fresh air, adequate sleep,

moderate sunshine and regular exercise. Also avoid tight clothing and synthetic underwear.

Add some oatmeal to your bath water. Oatmeal has naturally soothing qualities that help soften and heal irritated and itchy skin.

Promote tissue healing with Aloe Vera. Aloe Vera mixed with olive oil or tea tree oil can be applied to the area to promote healing.

Keep the anal area clean. Moistened toilet paper or wipes are gentle on the skin and make it easier to thoroughly cleanse the anal region.

Keep the anal area dry. Unscented baby powder or cornstarch can be applied to the area to keep moisture at bay and prevent chafing and irritation.

Eat plenty of fiber. A common cause of anal itch is constipation. Increasing your fiber intake will promote healthy digestion and stools and possibly relieve symptoms and prevent future occurrences. Fruits, vegetables and whole grains are great sources of dietary fiber.

Wash undergarments with a mild soap. Laundry detergents can be extremely irritating due to the chemicals present in some of them. The same goes for fabric softeners. Wash underwear with a mild unscented soap to prevent future irritation and itch.

If thrush or candida is suspected, there are herbal remedies which can help to maintain candida levels in your body within the normal range.

Herbal remedies may also be recommended to help with anal itching. Some examples include. (list ingredients from the product) Combination remedies are often most likely to be helpful. Make sure that you source your herbal remedies from a reputable company to ensure maximum safety, effectiveness and therapeutic dosage.

Skin ulcer:

Skin ulcers are open sores that are often accompanied by the sloughing – off of inflammed tissue.

Causes of skin ulcers:

Exposure to heat or cold

Irritation from exposure to corrosive material.

Trauma

Problems with blood circulation , etc..

Natural Herbal remedies

Gotu kola:

Origin: roots and leaves of *Centella asiatica*

Constituents and action:

Triterpenoidal saponins which may prevent excessive scar formation by inhibiting the production of collagen (the material which makes up connective tissue) at the wound site. Topical application of Gotu kola can improve healing of burns and wounds.

Doses:

1 – 2g teaspoons (5 -10g) is added to 2/3 cup of boiling water (150ml) three times daily.

Fluid extract (1/2 – 1 teaspoon (3 – 5ml) per day).

Tincture (2 – 4 teaspoons (10 – 20ml) per day).

Side effects:

No significant adverse effects except for allergic persons.

Burns:

For minor burns, natural medicine may be helpful after the burn is cleaned with soap and cold water and gently dried. Because of the risk of infection, topical applications should not be made to blistered or open burn wounds, unless under medical supervision. Symptoms of burns: It depends on the severity and cause of the burn but usually include pain and sensitivity to touch. The skins may appear swollen, blistered, dried, charred, weeping, or red, gray, or black-colored.

Herbs for Burns:

Calendula: (Marigold)

Origin: flower heads of Calendula officinalis Fam. Asteraceae.

Active constituents: Flavonoids (are thought to account for much of its anti-inflammatory activity), in addition to triterpenes pentacyclic alcohols and carotenoids.

Doses: Tea of Calendula can be made by pouring 1 cup (250ml) of boiling water over 1-2 teaspoons (5-10 grams) of the flowers; covered for ten to fifteen minutes, strained, 3 cups of tea are recommended per day. Wet dressings made by dipping a cloth into the cooled tea also effective for topical application. Tincture is similarly used three times a day, at 1/4 - 1/2 teaspoon (1-2ml) each time. The tincture can be taken in water or tea. Prepared ointments can be used topically for skin problems. Topical treatment for eye conditions is not recommended, as absolute sterility must be maintained.

Wound healing or wound repair:

It's body natural process of regenerating dermal and epidermal tissue. When an individual is wounded, a set of events takes place in a predicted fashion to repair damage.

Wound healing are categorized separate steps :

1- inflammatory phase:

clotting cascade.

platelets.

vasoconstrictions and vasodilatation.

polymorphonucler and neutrophils.

macrophages.

2. proliferate phase

angiogenesis.

fibroplasia and granulation tissue formation.

epithalialization.

contraction.

maturation and remodelation phase.

Useful herbs for stimulating wound healing:

Rose hips: known to have a high content of vitamin C.

Benefit: rejuvenates dry, aging skin.

Lemongrass (Indian verbena) : It's oil is very useful used in forming of many things:

Ayurvedic medicine

Perfumes and soaps

Insect deterrent

as anti-bacterial and fungi in wounds.

Chamomile (Matricaria recutita):

Both Roman and German Chamomile are excellent calming , but Roman Chamomile is more effective for irritation, impatience and feeling disagreeable.

Benefit: soothes sensitive skin.

Digestive System Diseases

Constipation

Dyspepsia and liver disorders

- Constipation:

Even though constipation is a common problem of the digestive system, for many people it is an embarrassing subject to discuss. The term constipation often means different things to different people ranging from less frequent bowel movements than normal to more difficult passage of stools or a combination of both.

Being constipated can make you feel uncomfortable, bloated, heavy and sluggish. Regular elimination of waste products from the body is vital to maintaining health.

Causes of Constipation:

Constipation can result from a number of factors revolving around diet, fluid intake and medications.

Possible Causes of Constipation

A diet low in fiber (lacking whole grains, bran, fresh fruit and vegetables)

Insufficient intake of liquids such as water, juice or tea

An inactive lifestyle

Poor bowel habits such as ignoring the urge to have bowel movements

Stress

Medications such as painkillers (especially codeine), antacids, antispasmodic drugs, antidepressants or iron tablets

Medical conditions such as irritable bowel syndrome (IBS), underactive thyroid gland (hypothyroidism), spinal injury, multiple sclerosis, kidney failure, colon or rectal cancer, too much calcium in the blood, tumors and lesions of the bowel can all result in constipation

Habitual use of laxatives and enemas can have a rebound effect of causing constipation

Changes in the environment

Older adults often suffer from **constipation due to a combination of poor diet, insufficient fluids, poor bowel habits or the side effects of prescription medication**

Pregnancy commonly causes constipation - hormonal changes and pressure on the bowel by the heavy womb can cause prolonged constipation which can in turn result in the development of anal fissures or hemorrhoids

Natural Remedies for Constipation

There are many **natural laxative** and holistic treatments that can help treat **symptoms of constipation** and promote easier digestion, without the side effects commonly associated with OTC or prescription drugs. **Natural laxative** treatments that include herbal and homeopathic remedies can **restore balance and regularity to the digestive system and bowel**. Nourishing herbs such as Aloe ferox, Taraxacum officinale (Dandelion), and Passiflora incarnata have **natural laxative** properties and also act as a tonic for the liver. Other herbs that may also have a

beneficial effect on the digestive system are Psyllium, a natural bulk forming laxative and Cascara and Senna to **stimulate bowel movements**. Remember to source your natural remedies from reputable companies to ensure maximum effectiveness and safety

How Can I Prevent Constipation?

There are various ways to prevent constipation and they include:

Add high fiber foods such as whole grain breads, bran cereal, dried fruit, raisins, fresh fruit and vegetables to your diet.

Drink plenty of liquids such as water, fruit juices, hot tea or lemon water to stimulate the bowels.

Ginger tea is an effective home remedy for constipation.

Regular exercise such as walking or swimming everyday can help to both prevent and relieve constipation.

Avoid regular use of laxatives or enemas.

Avoid alcohol, caffeine, processed and junk food if you are suffering from constipation.

Stool softeners taken daily may also prevent constipation.

Increase your intake of magnesium by taking supplements or eating foods such as nuts, seeds or green leafy vegetables.

Practice regular bowel habits by visiting the toilet for at least ten minutes after breakfast even if you are unable to have a bowel movement. The best time is usually the first hour after breakfast. Done regularly this will help to set up a healthy bowel routine.

Aloe ferox, Family: Liliaceae (lily)

Uses:

Bitter Aloe is the yellow juice that is found just below the skin of the Aloes Cape leaves, and the juice retains all the naturally present active ingredients, including

its main purgative component, anthrone C – glucoside aloin (barbaloin), which is a very strong laxative. Aloes Cape is a natural digestive-fermenting agent, supporting stomach complaints and detoxifying the intestines. As an aid to digestion, it is used to ease indigestion and improve a poor appetite. Aloes Cape is thought to enhance the immune system and may also raise the tolerance threshold in cases of allergies. Aloes Cape is said to have wound-healing properties and has been used to treat such diverse problems as eczema, conjunctivitis, hypertension and stress. In lower doses, it has been used to help in the treatment of arthritis.

Contraindications: Aloes Cape should not be used by pregnant or nursing women.

Passiflora incarnata

The dried aerial parts of passion flower (Passiflora incarnata) have historically been used as a sedative and hypnotic (for insomnia) and for "nervous" gastrointestinal complaints. Passion flower may have a benzodiazepine-like calming action.

Doses:

Doses of 0.5-2 grams of dried herb have been taken 3 – 4 times daily by mouth. Doses of 1-4 milliliters of tincture (1:8) have been taken 3-4 times daily by mouth. Tea made from dried herb (four to eight grams) has been taken daily. A dose of 2.5 grams in an infusion has been used 3-4 times daily. For Children, younger than 18 years, there is not enough scientific data to recommend passion flower for use in children at any dose.

Side Effects:

Passion flower is generally considered to be a safe herb with few reported serious side effects. In cases of side effects, the products being used have rarely been tested for contamination, which may have been the cause. Cyanide poisoning has been associated with passiflora fruit, but this has not been proven in human studies.

Rapid heart rhythm, nausea, and vomiting have been reported. Side effects may also include drowsiness/sedation and mental slowing. Patients should use caution if driving or operating heavy machinery.

Passion flower may theoretically increase the risk of bleeding and affect blood tests that measure blood clotting (international normalized ratio or "INR").

There is a case report of liver failure and death of a patient taking a preparation of passion flower with kava. Use cautiously with any kava-containing products, as kava has been associated with liver damage. It has been suggested that the cause of the liver damage is less likely related to the presence of passion flower.

Example of formulae used for treatment of constipation:

Caraway oil	2ml
Fennel tincture	8ml
Frangula barks extract	6ml
Belladonna tincture up to	30ml

Types of laxatives :

Irritating laxatives:They work by aggravating the intestine and causing the body to order an evacuation. It used in small amount and for short period (cause hemorrhoids and go to breast milk).

Bulk laxatives: used especially if you have sensitive or inflammation, hemorrhoids, or colitis, pregnant and nursing.

Irritating laxatives:

Rhubarb:

Origin: Rhizomes of Rheum palmatum, R. officinale (Fam. Polygonaceae).

Constituents: Anthranoids (emodin, rhein), tannins, flavonoids.

Action: Rhubarb has dual purpose

Astringent (bitter tonic) effect due to high percentage of tannins so it is used as astringent in small doses.

Laxative effects due to anthranoids content (in large dose).

Doses:

Rhubarb Tea : One teaspoon of coarse powder + one cup of boiling water (10ml) take two cups in the evening.

Aqueous Rhubarb tincture : One tablespoonful (laxative).

Rhubarb syrup : for children (one teaspoon).

Senna:

Origin: Leaves and pods of many Cassia species, especially C. acutifolia, C. angustifolia (Fam. Fabaceace).

Constituents: Anthraquinones glycosides, Anthranoids e.g. sennoside A, B (purgative principle) and mucilage.

Action: Anthranoids (results from hydrolysis of anthraquinones by the colon from microflora) inhibit the reabsorption of electrolytes and water from bowel leading to an increase in the volume of intestinal contents and intestinal filing pressure; this stimulates intestinal motility.

Doses: Tablets (187 mg); Capsules (10, 25 and 470mg). Suppositories; Granules; Fluid extracts; Syrup (contains coriander).

Bulk laxatives:

Psyllium:

Origin: Seeds of Plantago psyllium (Fam. Plantagonaceae).

Constituents: Psyllium is a bulk – forming laxative and is high in both fibre and mucilage. Psyllium seeds contain 10 – 30% mucilage.

Action: The laxative properties of Psyllium are due to the swelling of the husk when it comes in contract with water. This forms a gelatinous mass that keeps faces hydrated and soft, provided it is taken with sufficient water. The resulting bulk stimulates a reflex contraction of the walls of the bowel, followed by emptying.

Doses: 1 teaspoon of Psyllium husks is taken three times per day. Alternatively, some reference suggest taking 2 – 6 teaspoons (10-30 grains) of the whole seeds per-typically taken in three even amounts throughout the day. This is stirred into a large glass of water or juice and drunk immediately before it thickens. It is best to follow label instructions on over the counter Psyllium products for constipation. It is important to maintain a high water intake when using Psyllium.

Psyllium seeds bulk laxative :

One teaspoon Psyllium seeds husks.

One-cup worm water.

One teaspoon of lemon juice (optional).

Half-teaspoon honey (optional).

Psyllium husk + water (stirring) take two teaspoons once day at morning, then more water during day.

N.B. Lemon juice and honey act as flavours.

For children :

Psyllium juice was used

Half teaspoon ground Psyllium seeds.

Half-cup worm fruit juice or vegetable juice then mix well and taken it every morning.

Side effects : Using Psyllium in recommended amounts is generally safe. People with chronic constipation should seek the advice of a healthcare professionl. Some people with irritable bowel syndrome feel worse when taking Psyllium and may do better with soluble fiber, such as in fruit. People with an obstruction of the bowel or people with diabetes who have difficulty in regulating their blood sugar should not use Psyllium. Side effects, such as allergic skin and respiratory reactions to Psyllium dust, have largely been limited to people working in factories manufacturing Psyllium products.

Dyspepsia and liver disorders:

Dyspepsia is closely associated with habits. Patients describe the symptoms as nausea, pain and cramps, heartburn and the inability to digest food after rich meals. It is treated either by cholagogues (an agent that stimulates bile production in the liver or promotes emptying of the gallbladder and bile ducts) or with bitter stimulants.

Natural remedies:

Artichoke, large flowerheads of Cynara scolymus L., of family Asteraceae, the medicinal part is the leaf.

Constituents:

The leaf contains the bitter sesquiterpene lactone cynaropicrin, several flavonoids and derivatives of caffeoylquinic acid, including cynarin.

Action:

Antihepatotoxic effects (liver protection), cholagogue activity and a reduction of cholesterol and triglyceride levels have been reported. Cynara scolymus is one of

the most widely established species with clinical evidence available for it use a a cholagogue.

Turmeric, Curcuma domestica.

Roots and rhizomes of Curcuma longa (Curcuma domestica) family Zingeberacea.

Active constituents:

Volatile oil containing about 60% sesquiterpene.

Curcumin, which represent the major constituent.

Action of Turmeric:

It has been shown to have a wide range of therapeutic actions.

Used in digestion due to its volatile oil content.

Anti-inflammatory effect.

It protects the liver from a number of toxic compounds.

It protects against free radical damage because it is a strong antioxidant.

It reduces inflammation by lowering histamine levels and possibly by increasing production of natural cortisone by the adrenal glands.

It has been shown to reduce platelets from clumping together, which in turn improves circulation and may help protect against atherosclerosis.

Doses: Turmeric extracts standardized at 90 to 95% curcumin can be taken in the amount of 250 to 500 mg three times per day.

Tincture: 0.5-1.5 ml three times per day, is sometimes recommended.

Side effects: Uses in the recommended amounts, turmeric is generally safe. It has been used in large quantities as a condiment with no adverse reactions. Some herbal books recommended not taking high amounts of turmeric during pregnancy as it may cause uterine contractions and people with gallstones or obstruction of bile passages should consult their healthcare practitioner before using turmeric.

Ear, Nose and Mouth Diseases

Tonsillitis and chronic sore throat.

Halitosis (offensive breath).

Inflammation of the Otitis media (ear infection).

- Sinusitis.

Sore Throat:

A sore throat is usually due to **an infection in the throat area**. Sore throat causes are mostly related to cases of pharyngitis or tonsillitis. Aside from pain in the throat area, the sore throat symptoms can also include a reddish appearance or swelling in the throat, ear pain, difficulty swallowing, and a high fever.

As they are often around infections in school and child care, **children are more susceptible to contagious illnesses including sore throats** versus adolescents and adults. They occur all year long, but particularly during the winter months when colds and flu are more frequent.

Causes of Sore Throat :

Sore throats may be associated with many medical conditions. **Infections of the throat may be either viral or bacterial** and are usually very contagious. Approximately 90 to 95% of all sore throats are caused by viruses such as the flu virus, a cold, or infectious mononucleosis (glandular fever).

Other sore throat causes, about 5-10%, are contributed to bacteria such as streptococcus, mycoplasma, or hemophilus. Bacterial sore throats are usually more serious than viral throat infections.

A common cause of bacterial throat infection is a particular strain of streptococcus bacteria of the group “A Streptococcus”, and is **commonly called strep throat**.

This specific bacterium can also cause damage to the kidneys and heart valves as well as causing tonsillitis, sinusitis, ear infections, pneumonia, or scarlet fever.

Is a Sore Throat Contagious?

Viruses causing sore throats can be **spread through airborne droplets** as well as through **hand-to-hand** and **direct contact**. However, sore throats can also be a **symptom of other viral infections** such as chicken pox, measles, whooping cough, or croup. Fever blisters or canker sores may also develop in the throat causing extreme pain. Mononucleosis (also known as the kissing disease or glandular fever) is a common throat infection as a result of the Epstein–Barr virus lodged in the lymph system. This virus causes a severe sore throat, enlarged tonsils with white patches, and swollen glands in the neck and armpits, sometimes with accompanying jaundice.

A sore throat may also be brought about as a **result of environmental and other conditions**. Smoking and breathing secondhand smoke, consuming large amounts of alcohol, breathing chemical fumes or polluted air are all factors that may cause a sore throat.

Help for a Sore Throat

The best sore throat remedies including **drinking plenty of fluids** such as tea with honey and gargling daily with warm salt water. **Over-the-counter medication** such as paracetamol, ibuprofen, or antiseptic gargles will also provide pain and relief from sore throat symptoms, but **may cause unwanted side effects**.

More severe throat infections may require prescription medication such as antibiotics to suppress the infection. As antibiotics can not only cause unwanted side effects and other complications, but also rob the body of ‘good’ bacteria. It is important to determine whether they are really necessary, and if you do decide to take them, to **replenish the good bacteria** by eating live culture yogurt.

Natural Sore Throat Remedies

There are many **effective natural alternatives** to over-the-counter and prescription medicine that can **relieve sore throat symptoms** as well as **treat the cause**. Herbal and homeopathic sore throat remedies are safe, effective and gentle, without the harmful side effects or risk of addiction which accompany prescription and OTC medication. Natural remedies can treat the symptoms of sore throat while also helping to **strengthen the immune system** and **beat the infection**. Examples of homeopathic remedies used to treat sore throats include Gelsemium 6C, which relieves a sore throat and influenza, and also provides a soothing effect. Salvia officinalis is a powerful herb with **antibiotic and antiseptic properties** that benefits all conditions of the mouth and throat. Other herbs such as Garlic help to **fight bacterial infection** and promote a strong immune system while Agrimony and Thyme can be taken for their **astringent properties on the mucus membranes.** Remember to always ensure your natural remedies are sourced from reputable companies for maximum safety, therapeutic dosage and effectiveness.

Sage, Salvia officinalis L.

The genus Salvia is one of the largest of the family Lamiaceae and many of its species, especially those rich in essential oil, have pharmaceutical uses. This common garden plant (garden sage) and culinary shrub has conspicuous blue flowers and relatively large leaves (3 – 5cm long, 1 – 2.5cm broad), which are oblong or lanceolate, rounded at the base and at the apex and crenulate at the margin. The young leaves especially are covered with a white layer of fine hairs.

The leaves have a characteristic uneven upper surface and prominent lower venation. The taste and odour are characteristic, pungent and aromatic. Sage is a popular culinary herb. S. triloba L.f. is also rich in essential oil and has similar topical uses as S. officinalis.

Constituents: The leaves are rich in essential oil with α-and β-thujone as the major components (normally about 50%), with cineole, borneol and others.

It also contains rosmarinic acid. Diterpenes and flavonoids are two other important classes of natural products prominent in this species.

There are differences in the composition of the essential oil depending on the origin of the plant material.

Pharmacological effects and clinical efficacy:

The use for inflammation of the mucous membranes of mouth and throat is just one of the many pharmaceutical uses associated with this specie.

Rosmarinic acid is well known for its antiviral and anti-inflammatory effects. The essential oil has been shown to have antibacterial and antifungal activity. Spanish sage

(*S. lavandulifolia*) is often seen as a subspecies of the latter, and has suggested as a memory enhance.

Toxicology : In the doses used for mouth washes it is generally considered to be safe.

An infusion of Sage (*Salivia officinalis*) is used as a gargle or mouth wash for pharyngitis, tonsilitis, mouth ulcers and other similar disorders.

Sage extracts and oil have been reported to be antimicrobial. The flavonoids and phenolic acid derivative have antiviral and anti-inflammatory activity. A local treatment such as a throat spray or lozenge using herbs such as: Glycyrrhiza (Licorice), Kava, Althea (Marshmallow root) and Myrrh.

Peppermint oil, *Mentha piperita* L.

Peppermint oil antiseptic, deodorizing and anti-inflammatory and is widely used in skin and dental products. Other species of mint, such as spearmint, are also used for the same purpose (for botanical and chemical details).

Clove, *Syzygium aromaticum* (L.) Merr. L.M.Perry

Cloves are obtained from the flower buds of *Syzgium aromaticum* which are collected prior to opening. The flower buds are brown, of a very characteristic shape, bout 1 – 1.5 cm long, the lower portion consisting of the calyx tube enclosing in its upper half the immature flower. Both taste and odour are very characteristic. On pressing a clove with the fingernail oil should be exulded. Cloves are used as a culinary spice.

Constituents :

The drug is very rich in essential oil (15 – 20%).

The latter consists mainly of eugenol, usually 85 – 90% but variable, and numberous minor consistuents, including acetyl eugenol, α and β-caryophllene, methyl salicylate. Tannins such as eugeniin, casuarictin, tellimagrandin 1, and flavonoids, are found in the plant material but not in the oil.

- Halitosis:

Halitosis is the medical term for offensive breath. Halitosis is usually caused by tooth decay, gum problems, smoking, or mild digestive upsets. It can also be a sign of uremia, cirrhosis of the liver, or lung or sinus infections.

Halitosis Herbal Remedies

One of the more popular types of herbal remedies for halitosis is the chlorophyll treatment, which actually serves as a natural breath freshener. Most of coniferous green vegetables contain chlorophyll, which means that most green vegetables or plants that you can eat can actually help prevent bad breath. This means that you may have to change your diet by including a lot of green vegetables into the mix if you want to avoid having a skunk breath. Parsley is one of the best ways to help freshen your breath, and it does so in little time only. The excretion that can be taken from this plant is also considered to be more potent as compared to just eating the plant.

Another plant that basically offers the same relief from bad breath is cilantro,

which can also be juiced to get a more potent dose of breath freshener. Mint, which pretty much helps freshen your breath as well, leaves a minty fresh taste in your mouth after it leaves it smelling fresh. Again, this type of herbal remedy can be eaten, but its most potent effects can be achieved when it is juiced, giving you a minty fresh breath after you have consumed it, giving you an effective relief from halitosis. Other green vegetables that help you achieve this effect include spinach, alfalfa, wheat and barley grass.

Other herbs are used to clean the colon, which can help eradicate your bad breath, especially since the bad breath can emanate from the foods, such as meat and dairy products, that you have consumed which are being digested in your colon. Herbs such as aloe vera resin, senna leaves, cascara sagrada, trifala, rhubarb, and many others can help fight bad breath by evacuating the bowels, thereby cleansing the colon.

Aromatic herbal teas such as cinnamon, peppermint, ginger and cardamom can also help prevent halitosis since they can help in the entire digestion process, making it easier to digest food in the colon instead of just letting undigested food sit and rot there.

Otitis media:

Inflammation of the middle ear, or otitis media, can be divided into acute or chronic. Viral infection of the upper respiratory tract is associated with the onset of acute otitis media and the major infection is bacterial. Infections of the ear are treated with either topical or systemic antibiotics. However, the removal of wax from the ear is achieved with the aid of softening agents such as almond, arachis or olive oil.

Symptoms: Includes pain, purulent discharge from the ear, hearing loss, vertigo, tinnitus and fever.

Natural remedies for Otitis media:

Almond oil, Prunus amygdalus Batsch.

Almond oil is obtained from the seed of Prunus amygdalus Batsch (Rosaceae). It is a fixed oil , also known as sweet almond oil, and consists of triglycerides, mainly triolein and trioleolinolein, together with fatty acids, including palmitic, lauric, myristic and oleic acids.

Olive oil, *Olea europea* L.

Olive oil is expressed from the fruits of Olea europea L.(Oleaceae). Virgin (or cold-expressed) olive oil has a greenish tinge and is used as a food; refined oil is yellowish. Both have a characteristic odour. Olive oil is a fixed oil containing glycerides of oleic acid (about 70 – 80%), with smaller amounts of linoleic, palmitic and stearic acid glycerides.

Sinusitis: The drainage of the sinuses is blocked either by congestion or mucosal edema.

Treatment by immune – enhancing herbs such as Echinaceae.

Anticatarrhal (as Euphrasia, Golden seal) and decongestant (as Ephedra) herbs to clear the stasis.

Mucolytic herbs to clear the stasis (as garlic).

Steam inhalation containing antimicrobial and anti-inflammatory essential oils e.g. tea, aniseed oils or chamomile flowers. N.B.: Exposure to the environmental factors should be reduced and a dairy – free, low – salt diet should be tried for at least 3 months. Patients with chronic sinusitis should avoid antihistamines and steroid – based decongestant drugs (will weaken immunity in the region).

Drug abuse in sports "Doping"

Doping is an attempt to increase performance in sports competition (cheating process)

Doping is the use of subs or method that is potentially harmful to athlete's health &/or capable of enhancing their performance, So, the presence of a prohibited subs or method or evidence of its use in athlete's body is doping.

Why athlete use performance enhancing drugs?

1. To build mass & strength of **muscle** &/or **bones**.
2. To **reduce weight**.
3. To **stimulate the body**.
4. To **mask pain**.
5. For **relaxation**.
6. To increase **delivery of Oxygen** for exercising tissues.
7. To **hide** the use of **other drugs**.

Classes of prohibited substances & methods of doping (WADA 2006 list):

A) Prohibited classes of substances:

Stimulants – Narcotics – Cannabinoids – Anabolic agents (androgenic agents or other anabolics) -

Peptide hormones – β_2 antagonists – anti estrogen agent – Masking agents (Diuretics or others) – glucocorticosteroids.

B) Prohibited methods:

1. ↑ O_2 transfer: - blood doping
   - products that enhance O_2 uptake, transport or delivery.
2. Pharmacological, chemical & physical manipulation.
3. Gene doping.

C) Classes of drugs with certain restrictions:

1. alcoholics.
2. β–blockers.
3. Diuretics.
4. Local anesthetics.

Tests carried out by WADA-accredited Lab.: (2 steps)

1-**Screening**: carried out on all samples to identify those containing banned drugs.

2-**Confirmation**: of presence of prohibited subs or its metabolites in samples (that tested +ve).

Examples of abused drugs in sports:

1] Stimulants:	**2]Narcotics:** pain-killers	**3] Cannabinoids:**
e.g. Caffeine, beverages containing caffeine, cough & cold medication containing stimulants which are banned.	e.g. **Morphine** & its analogues	
Uses: CNS stimulant which ↑ alertness, ↑ B.P, ↑ blood glucose, ↑ body temp, ↓fatigue & ↑ performance.	**Uses**: pain relief	**Uses**: pain relief
Side effects (Health risks): -insomnia-nervousness- anxiety-hand tremors-trembling-↑ heart rate-↑ BP -weight loss-dilates pupil.	**Side effects**: constipation-respiratory depression-mental impairment-dependence (addiction)	**Side effects**: muscle spasm-hallucinations-mental impairment-dependence
Metabolism & excreted as **glucuronoids** & **SO_4^{--}**	as free drug or as glucuronoids or SO_4	➔to OH, COOH which are excreted as glucuronoids
Chromatographic analysis: Liq-Liq ext^n (strong alkaline pH 9.5) Hydrolysis-derivatization- GC (NPD)-GC/Ms-HPLC. NB: if caffeine conc in **urine** **>12µg/ml** ➔+ve test (as normal coffee, tea, caffeine bsed drinks eg cola will not reach this limit)	SAME as stimulant	1) alkaline or enzymatic hydrolysis➔acidification ➔ liquid extraction or SPE 2) TLC or HPLC screening 3) GC/Ms 4) RIA, EMIA, FPIA are used to detect cannabis in urine.

4] Anabolic steroids: (for ttt of cancer & testosterone deficiency)	**5] β2-Agonists:** (for ttt of asthma)
Uses: -Anabolics: ↑ body building -Androgenics: musclization & ↑ muscle strength (↑ performance to train harder)	**Uses**: ➔by **inhalation** to relax smooth muscles of respiratory tract ➔by **IV** to build muscles & reduce fats.
Side effects: psychological dependence-depression-↑ cholesterol-↑ BP-heart attack-↑ liver cancer. ♦S.E for Male: Prostate enlargement-infertility-breast development-baldness. ♦S.E for Female: ↑ hair in body & face -deep voice-menstrual disturbance-musclization.	**Side Effects**: Headache, Nausea, Dizziness, muscle cramps, increase HR
Metabolism: hydroxylation - glucuronoids or SO_4 conjugat**ⁿ**	**Metabolism**: methylation or phenolic SO_4 conj excreted free or conjugated in urine
Chrom Analysis: Rapid clean up on SPE - Enzymatic hydrolysis of conjugate - Liquid-liquid extraction –Derivatizat**ⁿ** - GC/Ms. For free steroids liquid-liquid extraction at pH=9, derivatization, MS determination	

6] Diuretics(to ↓ BP& ttt of heart diseases)	**7] β–blockers:** (to↓BP, ↓ heart rate)
Uses: quick loss of weight (loss of water). -Flush out other administered drugs from the body to avoid there detection in urine	**Uses**: to ↓ heart rate & as relaxants in sports e.g. archery athletes and shooting athletes
Side effects: dehydration- cramps- muscles weakening-↓ B.P- cardiac irregularities due to electrolyte imbalance and may affect athlete ability to tolerate heat.	**Side effects**: Heart failure – asthma-depression- sleeping disorder and sexual dysfunction
Metabolism: mostly excreted unchanged	
Analysis: liquid- liquid extraction or SPE Derivatization then capillary electrophoresis or GC/MS or HPLC/DAD	**Chrom Analysis**: GC or GC/ MS

To differentiate between naturally occurring & administered testosterone:

1) ratio of total (free +Conj)/epitestosterone [T/E] max limit is 6
2) ratio of total testosterone (free +conj)/Luteinizing Hormone [T/LH] max limit is 200
3) $^{12}C/^{13}C$ ratio using CIRMS (Combustion Isotope Ratio Ms)
4) Study the change of **endogenous profile of testosterone**: T/E ratio

8] Peptide hormones and its analogues: stimulate body function e.g. growth-sex derive–Sensitivity to pain

Analogue (peptide analogue): chemical drugs have similar effect to natural ones in body e.g. EPO, HGH HCG & ACTH.

A) Erythropoietin (EPO)	B) Human Chorionic Gonadotrophin (HCG)	C) Human Growth Hormone (HGH)
Use: prod by kidney to stimulate production of RBC's by bone marrow & for ttt of anemia		**Use:** increase muscle mass & bone growth.
Uses in sports: to ↑ RBC's number & O_2 supply to the muscles	to ↑ testosterone level in males & enhance muscle development.	**Use in sports:** to increase muscle mass
Side effects: heart attacks – blood clotting -stroke.	**Side effects**: headache – irritability – depression – fatigue – gynecomastia.	**Side effects:** 1) Abnormal growth of internal organs, bones, facial features, fingers, ear and skin (acromegaly) 2) Diabetes, heart and thyroid disturbance. 3) Menstrual disorders. ↓ Sex desire.
Chrom Analysis: Indirect determination: through alteration of blood parameters.	**Analysis**: **immunoassay**, if +ve , second different immunoassay is required to confirm the results.	-Immunoassays -electrospray mass spectrometry -HPLC/MS

D) Insulin	E)Adrenocorticotrophic hormone (ACTH)
Use: in ttt of hyperglycemia (diabetes)	to↑ level of corticosteroids Corticosteroids are used topically or IV or inhaler (as an **anti-inflammatory**)
to ↑ muscle mass & ↓ fats	to↑ level of corticosteroids to get their **euphoric** effect.
Side effects: hypoglycemia, coma & death	**Side effects**: water retention - moon face-↑uric acid- kidney damage-renal failure……
-immuno assay & HPLC/MS	RIA

Blood Doping
- It's the IV administration of blood or blood products to ↑ capacity of blood for O_2 carrying.

-**Use in sports**: increase delivery of Oxygen to tissues.

-**Side effects**: infections, allergic reactions (e.g. fever & rash), Circulation disorder (BP) , blood clot, Stroke, Heart failure, problems in immune system & kidney damage.

-**Test for hemoglobin based oxygen carriers (HBOCs)**:
❶ **Exclusion chromatography**: e.g. gel filtration & HPLC
to distinguish natural hemoglobin from chemically modified HBOCs
❷ **Electroscopy Ms** of enzymatic digest.

Drug Abuse

Self administration of drug in manner that deviates from medical or social pattern.
♦It includes nearly all medicinal as well as social drugs, stimulant beverages & common solvents [as tobacco, alcohol, coffee, tea, petroleum, aerosols…]

Classification of Abused drugs

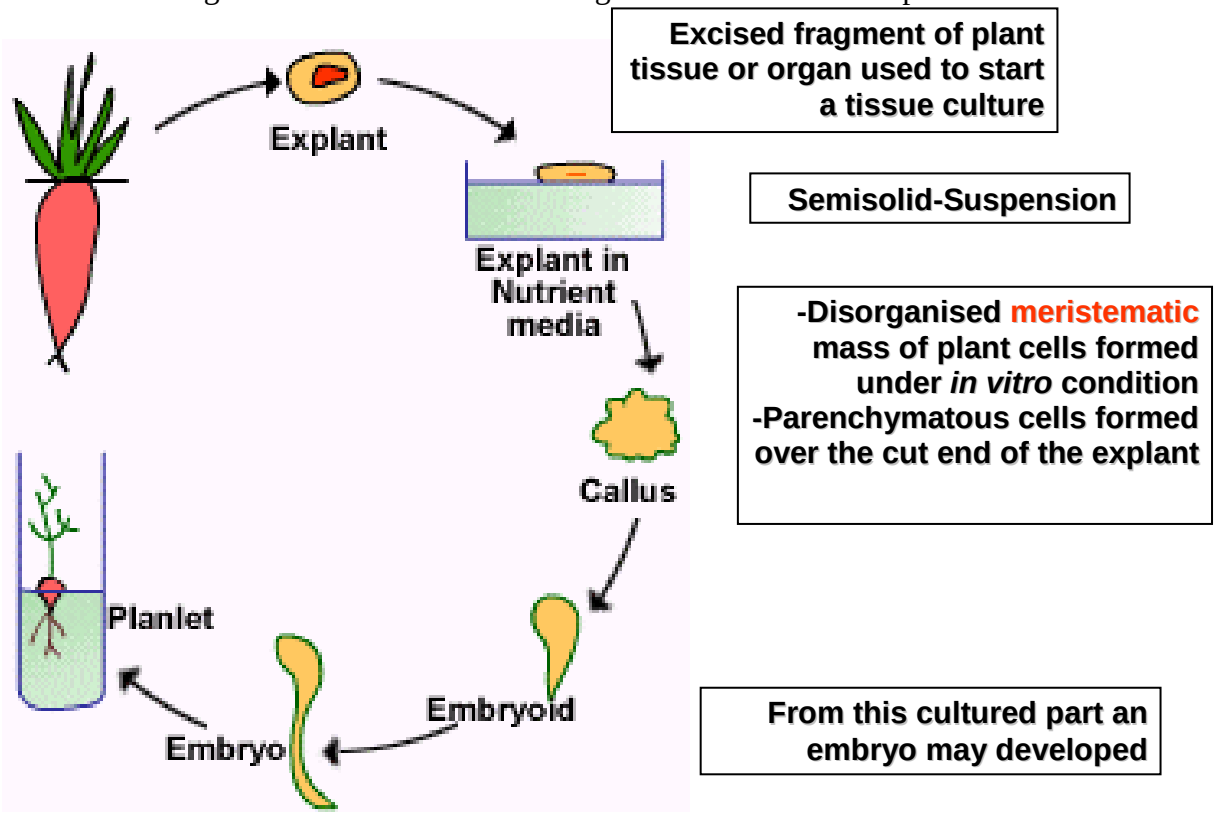
<table>
<tr><th colspan="2">Stimulants</th><th>Depressants</th></tr>
<tr><th>Natural</th><th>Synthetic</th><td rowspan="2">-Tranquilizers
-Hypnotics
(Barbiturates,
benzodiazepines
Valeriana roots)</td></tr>
<tr><td>-Caffeine (tea, coffee, cola)
-Cocaine (Coca)
-Ephedrine (Ephedra)
-Nicotine (Tobacco)
-Catha (cathin)</td><td>Amphetamine
Methamphetamine
(Maxiton forte)</td></tr>
<tr><th>Hallucinogens</th><th>Euphoriants</th><td rowspan="2"></td></tr>
<tr><td>-Solanaceous plants & alkaloids
-LSD
-Cannabis (Hashish, Bango)
-Mushrooms (Psylocine Psylocibine)
-Nutmeg (myristicin)</td><td>-Opiates
-Marijuana</td></tr>
</table>

Tissue Culture

Plant tissue culture is the technique of growing plant, tissues, and organs in a prepared nutrient medium and in the absence of microorganisms (under controlled sterile laboratory conditions) and it depend on **totipotentcy**

Totipotent cell:

contains all the genetic information and can regenerate into the whole plant.



Area of application of plant tissue culture includes:

1. **Plant propagation**
2. **Production of secondary metabolites**
3. **Biotransformation**

1. Propagation:

where small amount of tissue can be used to raise thousands of genetically identical plant (e.g. Lillis, Orris).

Advantages of plant propagation

a. Crop improvement: by producing new varieties of plants by genetic variation, it is possible to produce some designed characters e.g. salt resistance or cold resistance.

b. Production of pathogen and disease free plants: by tissue culture under sterile conditions where no chance for bacterial or viral infection. It is useful for crops which are susceptible to virus (e.g. canes resistant to mosaic virus, potato resistant to virus x and tobacco to wilt virus).

C. Shortening of the life cycle of certain plants: Tobacco plant resistant to virus could be obtained within two years, compared with six years, if use the ordinary breeding method.

2. Production of secondary metabolites:

Problems of taking the biochemical from the natural plant:

a. **Unsure supply**: because the natural plant is affected by many conditions e.g. weather conditions.

b. **Lack of standardization**: if the plant grows in different places then the properties and constituents differ from place to place.

c. **Adulteration:** due to the error in collection of specific medicinal plant by ignorant or unskilled workers.

Plant tissue culture can be considered as alternative source to agriculture in the production of many secondary metabolite e.g.

1. Alkaloids e.g. nicotine, atropine, hyoscine .

2. Carbohydrates e.g. starch.

3. Phenolic compounds e.g. tannins and flavonoids.

4. Steroids: Diosgenin and sex hormones

5. Enzymes.

6. Compounds produced in commercial scale by tissue culture:

a. Ajmalicine: used for circulatory disorders.

b. Shikonin: used in treatment of skin diseases.

c. Ubiquinone: used in treatment of congestive heart

Tissue culture is competitive to agriculture with its expensive requirements in case of :

1. Production of secondary metabolite at similar and high concentration than the intact plant e.g. Cassia tissue culture produce secondary metabolites ten times than the original
2. Production of new physiological active substances.
3. Production of rare, expensive compounds e.g. anticancer and anti AIDS.

3. Plant tissue culture biotransformation

Biotransformation:

It is the transformation of a particular substrate-synthetic or natural- to more useful products by enzymes of plant cell which can mediate special and unique chemical reaction normally carried in laboratory such as

- oxidation or reduction
- methylation or demethylation
- hydroxylation or gylcosylation
- saponification or estrification
- conjugation or isomerization**.**

What are the probabilities of Biotransformation expected by adding a certain substrate?

1. The plant cell culture will not use the substrate (chemical compound) and will not biotransform it.
2. The culture will take the substrate and use it but not biotransform it.
3. The culture will biotransform all or part of the added substrate into the desired compound.

4. The culture will biotransform the substrate into a new compound which is not found in the plant and may be of interesting pharmacological action.

Steps involved in plant propagation by tissue culture

A. Explant (plant source)

- The successful production of callus and subsequent plant regeneration is dependent in part upon the qualities associated with the explant.

Shoot tips, lateral buds, leaf tips, leaf bases, cotyledons and stem internodes are the sources of meristemoid cells;

These are characterized by (meristemoid cells):

-Respond to organogentic stimuli such as auxin / cytokinin balances.

-They are relatively small size, dense cytoplasm, isodiametric shape, thin cell walls, minimal vacuolation and **large nuclei**.

-They usually occur as cluster within the cultured tissues and sometimes appear as nodules or proembryonic mass.

-Explants must be free of microorganisms

Disinfestations of Explant Tissue to be Used for Culture

- It is always necessary to remove all micro-organisms from tissue to be cultured because they will outgrow the tissues and destroy them.

- The presence of micro-organisms changes the environment by removing nutrients from the medium and by releasing metabolic by-products into it.

Surface sterilization:

-A mild soap and running tap water

-70% ethylalcohol for 5 to 20 sec

-Chlorine solution

-Penetration of the disinfesting agent into uneven or hairy surfaces can be promoted by the addition of a wetting agent such as Tween 20

-Placing the explant and surface sterilant together in an Erlenmeyer flask on a rotary shaker with the use of a vacuum

-After disinfestation, all manipulations should be performed in a sterile environment. Utilizing a laminar-flow transfer hood is the most effective way to ensure sterility of material to be cultured.

-Sterilized tissue should be rinsed at least three times with sterile, distilled water. Antibiotic can be also used.

B. Establishing a callus culture

What is callus?

The most commonly cultured plant tissue is callus, which is wound tissue composed of differentiated, highly vacuolated, unorganized cells.

How is callus obtained?

Callus is usually obtained by culturing explants on a semisolid medium containing a high concentration of **salts**, **high auxin**, and **casein hydrolysate**.

- Once friable callus has been obtained, the tissue can be transferred to a liquid medium. If vigorous agitation and aeration is applied, a suspension of free cells and aggregates of cells can be obtained.

- Callus cultures are usually maintained in **darkness**, and **2,4-D (2,4-dichlorophenoxyacetic acid)** is frequently added to suppress organogenesis.

1. Media Formulations

Although whole plants have simple requirements for growth, plant-tissue cultures have more complex needs and are seldom autotrophic. Self-sufficiency (synthesizes its own supply)

Plant tissue in vitro requires:

1. Macro and microelements (Salts) supplied in **hydroponic*** culture. Other nutrients, such as a source of bound carbon and vitamins,
2. Plant-growth regulators (auxin - cytokinin)

***Growing plants without soil by providing nutrients in a solution instead.**

MS Salt Solutiom

Inositol ($C_6H_{12}O_6$)	**2 g**
Sucrose	**30 g**
Inorganic salts stock solution	**100 ml**
Complex vitamin concentrate	**10 ml**
Iron stock solution	**5 ml**
Growth hormones	
2,4-D	**1 mg**
IAA	**2 mg**
Kinetin	**0.2 mg**
Coconut water	**150 ml**
Agar	**10 g**
Distilled water to	**1000 ml**

Role and / or function of the culture media organic constituents

a.Vitamins

1. **Thiamine HCI** is the only vitamin seems to be a consistent requirement for growth of plant tissues *in vitro*.
2. Other vitamins should be added to media formulations where enhancement of growth or morphogenesis indicate they are necessary.

b.Carbon Source

1. The addition of an organic carbon source, such as **sucrose**, to plant tissue culture media, is **absolutely necessary** for nearly all tissue, as very few plant cells in vitro are autotrophic.

2. Sucrose, in concentrations of **2 to 3%** .the most commonly used carbon source.

C.Growth Regulators

- Hormones, in intact plants, act to regulate and coordinate processes which lead to normal development.

- Growth, as well as differentiation of tissue and cells and secondary metabolism, is affected by these hormones.

- The addition of plant-growth regulators to tissue-culture media, is not always necessary for callus cultures. However, supplementation with growth regulators is usually obligate for callus cultures in which an increase in the growth rates or organogenesis is required
- **lndole-3-acetic acid (IAA)** is the most generally used auxin for plant tissue culture because it has fewer adverse effects on organogenesis than other auxins.

- The most potent of the commonly used auxins is **2,4-dichlorophenoxyacetic acid (2,4-D).** It strongly suppresses organogenesis and is particularly useful for the maintenance of callus cultures.
- **lndole-3-acetic acid (IAA)** is the most generally used auxin for plant tissue culture because it has fewer adverse effects on organogenesis than other auxins.
- The most potent of the commonly used auxins is **2,4-dichlorophenoxyacetic acid (2,4-D).** It strongly suppresses organogenesis and is particularly useful for the maintenance of callus cultures.

The balance of **auxin to cytokinin** levels had an effect on organ formation.
The concept states that both auxin and cytokinin are necessary for the control of growth and of or organogenesis *in vitro*. The kind of development, i.e., **callus, roots or shoots**, is determined by the relative amounts of these two growth regulators. This concept should be applied when trying to obtain organ formation in culture.

Auxins	**Cytokinins**
Auxins derivatives of naphthol **Indole-3-acetic acid (IAA) (natural)**	**Derivative of kinetin** **15% of coconut milk**
Function **1. Stimulate the stem=shoot cell elongation** **2. Stimulate the root formation** **3. Inhibit the embryo formation**	**Function** **1. Promote and enhance the cell division** **2. Stimulate seed germination** **3. Delay the plant aging**
Disadvantage of naturally occurring auxins **1. easily decomposed by heat - should be added in large concentration**	
Synthetic auxins **Naphthalenacetic acid (NAA)** **2,4-D (2,4 dichlorophenoxy acetic acid)**	**Synthetic cytokinins** **Kinetin (purine derivatives)**

d. Amino Acids and Amides
Any enhancement of growth or morphogenesis can be explored further by testing a mixture of amino acids and amides.
The amino acids and amides which commonly give beneficial effects are L-argenine, L-aspartic acid, L-asparagine, L-glutamic acid and L-glutamine
e. Nitrogen Bases
The nitrogen bases, cytidylic and guanylic acids, have been reported to enhance growth in callus cultures.

2. Environmental requirements of callus culture
1. Light
2. Temperature
3. Humidity
4. Removal or Suppression of Microbial Contaminants from Cultures

C. Regeneration of plants from callus cultures
Some valuable biochemicals are only synthesized (or synthesized in greater quantity) by differentiated tissue or are only accumulated in specialized organs or tissues.

e.g.: the total alkaloid content of callus cultures is often low, but is increased with morphogenesis and plant growth.

Therefore, it may be necessary to obtain and maintain differentiated and organized tissue for the purpose of extracting drugs ideally.

Techniques used for regeneration of plants from callus:
There are two ways to regenerate plants from callus, through the **initiation of shoots** or **by somatic embryos**.
a. Regeneration of Shoots From Callus Cultures
b. Regeneration of Plants by Somatic Embryogenesis
c. Rooting of *in vitro*-Produced Plants
d. Hardening-Off Propagules for Reestablishment in Soil
e. Production of Biochemicals by Organized Cultured Tissues

a. Regeneration of Shoots From Callus Cultures:
Regeneration of shoots is generally accomplished in **the presence of light** and in a culture medium of **high osmolarity** containing chelating agents.
An **exogenous** supply of **carbohydrates** is usually necessary for shoot initiation.
The maintenance of shoot cultures usually requires the presence of exogenous cytokinin as well as auxin. Exemplified in full details in assignment .
The single most important factor determining organ formation in tissue culture is the **relative quantities of auxin and cytokinin.**

There appears to be a universal control, by the relative levels of auxin and cytokinin, of a regulatory mechanism which leads to organogenesis within the cells and tissues of plants.
e.g.**Tobacco stem** segments produce **callus** when supplied exogenously **with auxin and cytokinin of approximately the same molar concentration.**

If the **auxin** level is **raised** relative to **the cytokinin** concentration. **Roots** are induced.
Conversely, when the auxin concentration is lower than that of the cytokinin, **shoots** are formed on the tobacco tissue

c. Rooting of *in vitro* -Produced Plants
Rooting of plants produced by means of tissue culture is an important step in the clonal multiplication of a desirable plant.
A **reduction** in the concentration of both **sucrose and salt** generally enhances the induction of adventitious roots on shoots grown *in vitro*. Lowering the sucrose concentration from 3 to 1 and reducing the concentration of a MS salt solution by 50 is usually satisfactory.
Auxin has also been beneficial in inducing rooting. The rooting of shoots should be distinguished from the induction of roots on callus or on explants *de novo* via the manipulation of the relative levels of auxin and cytokinin.
An **increase in light** intensity may be advantageous for rooting plantlets. Exemplified in full details in assignment

b. Regeneration of Plants by Somatic Embryogenesis
Regeneration of plants from cultured cells can occur through somatic embryogenesis (the process of embryo initiation and development from vegetative or nongametic cells / asexual embryogenesis).????? Next slide.

1. Removal of Auxin

- When callus from certain plants is transferred from a medium containing an auxin (2,4-D or NAA) to a medium **lacking auxin, somatic embryos** are formed.
- The addition of the antiauxin, 2,4,6-trichlorophenoxyacetic acid, to the culture medium increases the number of embryos formed in wild-carrot cultures.
-The precise mechanism by which 2,4-D and other embryogenic suppressants act is, as yet, unclear**.**

2. Nitrogen and Potassium Ions

- Enriching the nutrient medium with nitrogen enhances somatic embryogenesis.
- The potassium ion also positively affects the number of somatic embryos formed in cultured tissues.

d. Hardening-Off Propagules for Reestablishment in Soil

Many valuable propagules (Plantlet) can be lost if care is not taken when transferring them to soil. The change from the heterotrophic to the autotrophic state has to be somewhat gentle.
A good root system should help propagules to withstand some moisture stress.
Placing the small plants in a shaded greenhouse and under an intermittent mist spray can reduce excessive transpiration.
Sterilizing soil in an autoclave Soil sterilized in an autoclave should be allowed to remain, covered, at room temperature, for 1 to 2 weeks prior to use.

e. Production of Biochemicals by Organized Cultured Tissues

The production of drugs or other biochemicals by plant tissues may, in some instances, be **more efficient when organized tissues** are employed. Although we can presently culture the organs and tissues in which specialized cells occur, we cannot culture highly specialized cells such as glandular hair or lactifers

If the efficient production of a specific biochemical is not technically feasible at present, the most economical way of producing the compound could be by clonal multiplication through the tissue culture of superior genotypes.

Medicinal uses and applications of tissue culture

(1) To Study basic problems related to growth & differentiation of plant.
(2) Agricultural uses.
(3) To store valuable plant germ plasm in culture.
(4) in plant micro-propagation (main & most important use): So, tiss. Cult.
(5) Production of secondary metabolites:-

I) Production of native plant constituents
II) Biotransformation: [non native constituents]

Tissue Culture	Classical plant Breeding
- **Faster** growth & higher yield - need **Small space** - **gene Specificity**: e.g :produce plant resistant to pesticide - **genetic variability**: e.g non-leg → leg (N_2 fixation)	- **slow** - **large space** - **No** gene Specificity - **No** genetic variability

Genetic engineering

-this term refers to technology for **recombinant DNA** or **Molecular Biology** or **biotechnology** :

-this technique involves Isolation of beneficial gene from an organism (donor) & inserting it in plant cell (recipient) which is used to:

1) Improve the quality of the plant.
2) Produce higher yield of plant that resists environmental stress (insects & pesticides).
3) Produce new 2^{ry} metabolite & prep of new therapeutically active plant.

Phytotherapy

Case studies

For

THIRD YEAR PHARMACY STUDENTS

Department of Pharmacognosy
Faculty of Pharmacy
Menoufia University

Evaluation Sheet

Name……..……..

Section ..... Number…….

Date	Subject	Signature
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Activity (1)

Activity (2)

Activity (3)

Formula 1

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

1	Each soft gelatin capsule contains: Peppermint oil Anise oil Ginger oil Thyme oil	 75 mg 75 mg 50 mg 50 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 2

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

2	Each 5 ml contains: Dill oil Compound cardamom tincture Peppermint spirit Belladonna tincture	 2.3 mg 0.05 ml 0.75 mg 0.01 ml

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 3

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

3	Each soft gelatin capsule contains: Purified Senna extract Peppermint oil	 20 mg 100 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 4

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

4	Each 5 g of the granules contains: Seeds of plantago ovata Ispaghula husk Tinnevelly senna pods	 2.6 g 0.11 g 0.62 g

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 5

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

5	Each capsule contains: Cynara dry extract Silymarin Mentha dry extarct	 100 mg 50 mg 25 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 6

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

6	Each soft gelatin capsule contains: Saw palmetto extract Tomato extract (lycopene) Uva ursi extract Pegeum africanum extract Pumpkin seed oil	 150 mg 41.67 mg 50 mg 385 mcg 300 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 7

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

7	Each capsule contains: Saw palmetto berry extract Pegeum extract Stinging Neetle extract	 150 mg 54 mg 10 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 8

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

8	Each capsule contains: Pegeum africanum extract	 50 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 9

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

9	Each soft gelatin capsule contains: Pinene (α + β) Camphene Borneol Fenchone Anethole cineole	 31 mg 15 mg 10 mg 4 mg 4 mg 3 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 10

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

10	Each 120 ml contains: Pimpinela ext. Grindelia ext. Primula ext. Thyme ext. Rose ext.	 0.048 ml 0.048 ml 0.24 ml 0.288 ml 0.24 ml

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 11

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

11	Each 100 ml contains:	
	Guava extract	12.5 ml
	Black seed extract	12.5 ml
	Tilia extract	18.75 ml
	Fennel oil	0.05 g
	Cinnamon oil	0.05 g

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 12

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

12	Each 100 ml contains: Peppermint oil Camphor Eucalyptus oil Tr. Benzoin to	 5 ml 1 g 5 g 100 ml

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 13

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

13	Each 100 ml contains: Dried ivy leaf extract	 0.7 g

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Formula 14

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

14	Each sachet contains: Olea europea leaves Hibiscus sabdariffa sepals Matricaria flowers.

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 15

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

15	Each tablet contains: Ginkgo biloba extract	 40 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 16

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

16	Each enteric coated tablet contains: Aescin amorphous	 40 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 17

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

17	Each capsule contains: Kava kava extract	 150 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 18

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

18	Each capsule contains: Valeriana dry extract Humulus lupulus extract	 100 mg 25 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 19

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

19	Each capsule contains: Black cohosh extract	 80 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 20

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

20	Each capsule contains: Chitosan Ascorbic acid Gymnema sylvestre	 500 mg 100 mg 50 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:
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Side effects and contraindications of the formula:
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Drug interactions (if any):
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Dosage form:
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Dose:
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Formula 21

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

21	Each capsule contains: Total extract of unsaponifiables of avocado and soybean oil	300 mg

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Formula 22

These are some herbal preparations in the Egyptian market. For each formula, complete the following:

22	Each 100 g contains: Oleoresin capsicum Camphor Menthol Methyl salicylate Oil o camphor	 0.42 g 1.2 g 1.21 g 0.48 g 0.18 g

Trade name of the formula:

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Indications of the formula:

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Role of each active ingredient in the formula:

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Side effects and contraindications of the formula:

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Drug interactions (if any):

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Dosage form:

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Dose:

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Case 1

WP is a 60 years – old housewife. Although she has gained ten pounds over the past six months, she is not overweight. She has played tennis regularly for many years, but now she has moderate morning stiffness. Increased pain in her hip and elbow when she exercises, this prevented her from maintaining her previous level of activity. A history of peptic ulcer disease indicates that WP is not a candidate for NSAIDs. She has heard that there are natural products which may relieve her pain.

Name of

Disease::……

……..... Description and physiology:

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Etiology:

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Herbs used:

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Herb of

choice:.……

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Active constituents:

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Mechanism of action:

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Clinical trial (if present):

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Contraindications (Disease and herbs):

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Dose and method of administration:

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Case 2

VZ is a 48-year-old black female diagnosed with uncomplicated essential hypertension. Her blood pressure has been adequately controlled with Losartan 25 mg bid. On today's visit her blood pressure is low at 110/60 mmHg, and she smells strongly of garlic. How do you interpret her blood pressure in terms of garlic consumption?

Name of

Disease::……

……..... Description and physiology:

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Etiology:

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Herbs used:

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Herb of

choice:..……

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Active constituents:

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Mechanism of action:

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Clinical trial (if present):

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Contraindications (Disease and herbs):

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Dose and method of administration:

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Case 3

RK is a 44-year-old executive who is concerned about his risk of cardiovascular disease. He has recently quit smoking and started exercising. He also read that antioxidant substances might play a role in helping him to avoid heart attack. What is the rational for using antioxidant substances and which of them might RK use to prevent cardiovascular disease?

Name of

Disease::……

……..... Description and physiology:

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Etiology:

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Herbs used:

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Herb of

choice:.……

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Active constituents:

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Mechanism of action:

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Clinical trial (if present):

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Contraindications (Disease and herbs):

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Dose and method of administration:

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Case 4

MJ, a 38-year-old female, is normally an energetic and positive woman, but for the past 3 weeks she has found herself dreading getting out of bed in the morning, and obtains little joy from her work. She quit her work golf team and does not go out with her friends anymore. She has lost 10 pounds over the past month and finds food unappealing. MJ reads an article in her fashion magazine about nature's miracle cure for the "blues" St John's Wort. Recognizing many of her symptoms in the description of depression in the article, MJ decides to try St. John's Wort, but she comes to the pharmacy to ask your opinion first. What do you recommend?

Name of

Disease::……

……..... Description and physiology:

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Etiology:

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Herbs used:

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Herb of

choice:.……

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Active constituents:

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Mechanism of action:

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Clinical trial (if present):

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Contraindications (Disease and herbs):

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Dose and method of administration:

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Case 5

TC is a 58-year-old male with a history of alcohol abuse. He is experiencing weight loss, digestive disturbances including loss of appetite and right upper quadrant pain. Ascites are present but not severe.

Laboratory values include:

Elevated serum alanin aminotransferase (ALT) 72 IU/Liter (nl 8 - 46)

Aspartate aminotransferase (AST) 58 IU/Liter (nl 7 - 46)

Alkaline phosphatase (ALP) 134 IU/Liter (nl 25 – 100).

Name of

Disease::……

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Etiology:

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Herbs used:

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Herb of

choice:..……

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Active constituents:

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Mechanism of action:

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Clinical trial (if present):

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Contraindications (Disease and herbs):

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Dose and method of administration:

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Lab. report sheet

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