

PLANTS AS MEDICINES

BACKGROUND

- Plants used by man from earliest times.
- 15,000 B.C. First "Medicine man" ? Sharman of Trois Freres, Pyrenees.
- 4,000 B.C. Sumerian civilisation in Fertile Crescent.
- 4,000 – 2,000 B.C. Minoans. Symbol of the serpent.
- Writing/alphabets 3,500 B.C. (i.e. no records, word of mouth)
- 3,000 B.C. Sumerian Physician seal (Welcome Museum)
- 3,000 B.C. Sekhet'enanali and Imhotep in Egypt.
- 3,000 B.C. Chen Nung (self experimentation) and Pen Tsau – "great herbal" in China.
- 2,650 B.C. China – Nei Ching "Book of Medicine." Yang yin – Hormonal balance, Massage and acupuncture, Smallpox inoculation – Insufflation and cretins treated with thyroid from sheep.
- 2,300 B.C. Babylonian medicine man (Louvre)
- Bible. Treatment by men of God. Instructions re. personal hygiene.
- 1500 B.C. Recipes from Egyptians(Eden Smith papyrus), Ebers papyrus from Thebes with 900 recipes plus spells, incantations and amulets!
- 1500 B.C. India - Hindu medicine - Rig Veda spells and incantations.
- Greece. Apollo God of health. Delphi oracle for advice ? medical.
1250 B.C. Aesculapius – ritual of temple sleep ,ritual of "incubation"
500 B.C. Alcmaeon of Croton described Eustachian tube and optic nerves and regarded disease as a discord of the elements of the body.
460 B.C. Hippocrates. Importance of prognosis, Aphorisms, used auscultation. Little use of drugs, used baths and fomentations and had surgical skills. 384
– 322 B.C. Aristotle studied bees, fishes and molluscs. Body had 4 fundamental qualities:- hot and cold, Dry and moist (later developing to 4 humors – Blood, phlegm, yellow bile and black bile.

370 – 287 B.C. Theophrastus, a Botanist, produced *Historia Plantarum* and distinguished between mono and dicotyledons.

A.D. 60 Dioscorides " *De Materia Medica*),

- China - A.D. 195 Book on fevers.
- 605 *Divine husbandman's materia medica* from Chinese god Shennong (first official in Tang dynasty.
- 1493 – 1541 Paracelsus "Doctrine of Signatures" Concept of shapes of plants related to parts of the human body e.g. heart shaped leaves, plants with yellow flowers - St John's wort and turns towards the sun (dandelion) associated with the sun. Mars – plants with thorns and prickles indicating a martial spirit. Saturn – plants with knobby qualities useful for swollen joints
- 1542 *Valerian Cordis* in Nuremberg produced recipes and many others in Europe at the same time.
- Australian aborigines – knowledge by word of mouth, as demonstrated today.
- Pharmacopoeias- London Pharmacopoeia 1621

Culpeper 1640

Gradually altered and developed until 1850 – Edinburgh Pharmacopoeia

1858 British Pharmacopoeia published 1864.

- Knowledge held by many but particularly by healers, wise women, witches, witch doctors, shamans etc. etc.
- Development of medicinal gardens associated with monasteries, universities, hospitals.
- Pre-European arrival, aborigines depended on indigenous plants of their region.
- Western medicine dominated by concept of illness from Humors so methods devised to clear the body of their ill effects – purging, bleeding, scarifying, blistering, cupping etc. (Charles 2nd.)
- Joseph and Thomas Bosisto (father and son) experimented with native plants as did Brown and Von Mueller who favoured the development of Eucalyptus products with Bosisto.

- During the 19th century chemists isolate active ingredients from herbal medicine and pharmaceutical companies manufactured preparations more specifically targeting particular medical illnesses.
- As the result old herbal medicines gradually replaced by tablets, mixtures, injectables that we know today.
- Since the 1950s a whole industry of "herbal", "natural", "organic", "traditional" medications has emerged making use of a multitude herbals, vitamins, minerals. Claims for their efficacy mirrors those of the advertisements of the 19th century pharmacists.

- Problems in estimating their value include: - Are they needed ?

The number and variety of ingredients.

Scientific evaluation and trials.

Efficacy

Cost – value for money.

Suspect advertising- "May"

"Try"

"Could"

"Shown" (by whom)

"Need to succeed"

"Owe it to your family"

"Needed by sportsman"

"Money back"

Variety of same preparation for:-

Men

Women

Pregnancy

Arthritis

Headache

Plants as Medicines 2

Pharmaceuticals present in Hale – **White's Materia medica Pharmacology and Therapeutics 30th. Edition, 1957.** (My student textbook!) Based on plant sources. these represent substances derived from plants that had a significant role still in the treatment of disease, that had been used for many years, scientifically researched and still have a role today.

GUMS

Uses:- To cover inflamed surfaces.

Basis for enemata to be retained.

For suspension of insoluble drugs.

For masking flavours or rendering fluids more bland.

Astragalus gummifer.	Tragacantha	Mucilago Tragacantha.
Acacia senegal	Gum Arabic.	Mucilago Acacia
Glycyrrhiza glabra	Liquorice root.	Glycyrrhizae liquidum
Linseed.	Linseed oil.	Oleum Lini.
Amylum.	Starch from Maize, rice, wheat or potato.	Glycerinum Amyli

OILS

Olea europia	Olive oil	Oleum olivae
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Olive oil is used for :-

Massage,

Application to dry skin.

Where skin is placed in increased tension e.g.lactation and pregnancy.

Internally after poisons., and for gastric and duodenal ulcers.

As an enema.

Arachis hypogea.	Peanut oil	Oleum arachis
Sesamum indicum.	Sesame oil	Oleum sesami.

Uses :- similar to olive oil.

Amygdala Dulcis and Amara. Sweet and bitter almond Oleum amygdalae.

Demulcent and additive to cough mixtures.

Taraktogenus Kurzii Chaulmoogra oil

Hydnocarpus Wightiana Hynocarpus oil

Used in the treatment of leprosy as an injection and locally

BITTERS

Uses:- To promote appetite by stimulating saliva and gastric juice.

Gentiana lutea. Gentian (dried rhizome and root).

Picroena exelsa. Quassia (wood of trunk and branches)

May also be used as a colonic wash in cases of Oxyuris vermicularis.)

VOLATILE OILS

Uses :- Locally as counter irritants – rubefacient, vesicant and pustulants.

Turpentine oil. Cade. Eucalyptus. Menthol.

Mustard. Rosemary.

Colophony. Camphor. Cinnamaon

Internally as carminatives.

Cloves. Nutmeg. Cinnamon. Lemon. Ginger.

Cardomans. Lavender. Peppermint.

Anise. Coriander. Fennel. Caraway. Dill.

On bronchial tubes.

Terebene. Balsam of tolu. Storax.

On genito-urinary tract.

Oil of Cubebes.

Pinus (various) Turpentine. Liniment and Oil of terebinthae.

Juniper (Various) Juniper tar oil, Oil of Cade. Oleum cadinum.

Cinnanomum camphora Camphor Aquq and Linimentum.

Rubefacient and carminative .Stimulates brain at first, then depresses.

Mentha (various)	Menthol	
<i>Antiseptic, mild local anaesthetic. Gives mild vasodilation on skin, .Inhaled for coryza, sinusitis and tracheitis.</i>		
Mustard seed	Mustard oil.	Oleum sinapis
<i>Local irritant, emetic when given orally.</i>		
Eucalyptus	Eucalyptus oil	Oleum eucalypti
<i>Antiseptic, vesiculant and pustulant. As a vapour for respiratory problems.</i>		
Rosemarinus officianalis	Oil of rosemary	Oleum rosemarini
<i>Inhalation for coryza/ respiratory problems.</i>		
Eugenia aromatica.	Oil of Cloves.	Oleum caryophillum.
<i>Used for temporary filling of teeth.</i>		
Ricinis Communis	Castor oil	Oleum ricini
<i>Used as a purgative acting on small bowel.</i>		
<i>As a cream with zinc for eczema and bedsores.</i>		

ANTHRACENE PURGATIVES.

Cassia Aciphylla (et alia)	Senna leaf/pods
<i>Used as a purgative.</i>	
Rheum Officinale	
Rheum Palmatum	Rhubarb root
Aloe (Various,African plants.)	Aloe juice from cut leaves
	Aloinum

Scammony (Ipomoea Pandurata) ,Jalap(Ipomoea jalapa), Colocynth (Citrullus colocynthus and croton oil (Croton tiglium,Codiaeum variegatum) are all powerful purgatives and were no longer used by 1947.

VEGETABLE ASTRINGENTS

Used:- to treat poisons and salts of heavy metals.

to check diarrhoea.

as a solution to treat burns

Astringent for ulcers, sores and moist eruptions

Enema for proctitis and ulcerative colitis

Hamamelis Virginia	Witch hazel leaves	Tannin
Quercus infectoria	Gall from excrescences caused by puncture and egg deposits of Cynips gallae tinctoriae and many other insects, fungi etc.	Tannin.

ANTHELMINTICS

For Tapeworms.

Dryopteris filix-mas	Male fern	Filicin Resins
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For Roundworms

Artemesia pauciflora (Cini)	Levant wormwood	Santonin.
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For Hookworm

Thymus vulgaris	Garden thyme	Thymol
Chenopodium ambrosioides	Wormseed	Ascaridole (+ Trichlorethylene)

ACTION ON C.N.S.

Opiates inhibit normal peristalsis, depress respiration, depress cough reflex, ease pain, produce euphoria,

Papaver somniferum	Opium Poppy	Opium Morphine/heroin Codeine Papaverine.
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Cerebral depressant – used in mania, delirium tremens, febrile delirium, paralysis agitans, sea sickness.

Strychnos toxifera et alia	Bark	Curare.
Chondodendron tomentosum		

Produces muscle relaxation

HYPOTENSIVES

Rauvolfia serpentina (Apocyanaceae)	?	Serpasil.
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LOCAL ANAESTHETICS

Erythroxylon cola	Coca	Cocaine.
Aconitum napellus	Monkshood	Aconite
Veratum viride	Green Hellebore	Veratoidine

PARASYMPATHOMIMETIC DRUGS

Agaricus muscarus		Muscarine
Pilocarpus microphyllus (et alia)		Pilocarpine

Ophthalmological use to constrict pupil and reduce intra-ocular pressure. Has been used as a diaphoretic and to increase salivary flow.

SYMPATHOMIMETIC DRUGS.

Ephedra sinica		
Ephedra vulgaris	Teamster's tea	Ephedrine.

Stimulates the cerebral cortex – relieves fatigue. Used in asthma, emphysema. May abort migraine, treatment of narcolepsy, enuresis nocturna, Myasthenia gravis, Stokes Adams attacks and as a nasal spray for hay fever.

SYMPATHOLYTIC DRUGS

Claviceps purpurea	Fungus on Rye –Ergot.	Ergotamine.
		Ergometrine.

Used in obstetrics to stimulate uterine contraction, acts on nervous system -> convulsions, on eyes -> mydriasis , on heart -> tachycardia.

BARKS

Cinchona officianalis	Quinine tree	Quinine.
		Quinidine.
		Cinchonine.
		Cinchonidine.

Quinine is used to treat malaria as it destroys the parasites. Quinidine used for its action on the heart, reducing conductivity i.e. in AF and paroxysmal tachycardia.

Salix (various)	Willow bark	Salicylates.
Populus	Poplar	? “ “

Salicylates are antipyretic, analgesic. Used in rheumatic fever, reduces arthritic swelling. Inhibits clotting.

Styrax Benzoin (Incised stem)		Benzoic acid, resin.volatile oil
		“Fryar’s Balsam “

Used topically as antiseptic and stimulation of healing of wounds, as a vapour for bronchitis and laryngitis.

CARDIAC DRUGS

Digitalis purpurea	Purple Foxglove.	Digitalis.
		Digoxin.
Strophanthus Kombe		

Strophanthus speciosus

Corkscrew Flower

Strophanthus.

Used in Atrial fibrillation , Atrial flutter, CCF.

EMETICS/EXPECTORANT.

Quillaja saponaria

Soap Tree (Bark)

Saponin

Carapichea/Cephaelis

Dried root

Ipecacuanha

Used to promote vomiting, e.g. in poisonings, also as an expectorant in smaller doses.

GOUT.

Colchicum Autumnal

Meadow Saffron

Colchicine.