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PLANT SOURCES OF FORMULATED HOMOEOPATHIC DRUGS

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ABSTRACT

A survey was conducted in the homoeopathic pharmacies in Chennai to study the plant sources of formulated homoeopathic drugs that are common and popularly sold in commercial outlets. This study deals with 127 homoeopathic medicinal plants that are used in various formulated preparations such as cosmetics, drops, oils, ointments, powders, tablets and tonics. Medicinal plants that are exclusively used as mother tinctures diluted and prescribed by homoeopathic practitioners for treatment are excluded. Many practitioners of homoeopathic system prescribe formulated drugs manufactured by the pharmaceutical companies that specialize in homoeopathic drugs. Another survey was conducted to explore the most frequent prescriptions given by the homoeopathic practitioners in Tamil Nadu. Plant sources of these prescriptions are studied. It is found that 34 of these plant sources are commonly used as ingredients in many formulated drugs sold in the commercial outlets.

INTRODUCTION

All traditional medicinal systems in India use formulated drugs. Traditional texts of Ayurveda and Siddha mention many formulated drugs such as Triphala, Dashamul, Chavanaprash, Vydactin, Liposem, Gynocalm, Medonil, Dixtronil, Imex, Imigrone-c, Navayaga Churnam, Anuloma Churnam, Tribuvanakirti Rasa and Swarnamuktadi gudiga. Apart from these formulated drugs mentioned in traditional texts a number of pharmaceutical companies also produce new formulations that use plants, mentioned in Ayurvedic and Siddha texts, which is a legally approved process in India. Most of these formulations remain property of pharmaceutical companies that manufacture. Though formulations are common in the native medicinal systems of India, it is relatively new to the Homoeopathic system.

The discipline of Homoeopathy essentially lies in a holistic approach towards the sick person in treating the patient's disturbances at the emotional, physical and mental levels in an integrated manner. The system does not advice self-medication. The medicines have to be strictly prescribed by the homoeopathic practitioners only. According to the homoeopathic principles the system favours, "The Law of the Single remedy", but the formulations in homoeopathy are now becoming popular as these drugs can be sold as over the counter drugs without a prescription. A number of homoeopathic practitioners

themselves prescribe these formulations with the main course of medicine.

A Survey was conducted in three Homoeopathic pharmacies in Chennai to study the plant sources of formulated Homoeopathic drugs that are common and popular and sold in commercial outlets. This study deals with 127 Homoeopathic medicinal plants that are used in various formulated preparations such as cosmetics, drops, oils, ointments, powders, tablets and tonics. Details such as trade names, composition, indications and the address of the manufacturers of the drugs were noted. Medicinal plants that are exclusively used as mother tinctures diluted and prescribed by Homoeopathic practitioners for treatment are excluded. Botanical aspects such as family, habit, plant parts used and phytogeography have been studied. All the formulations have been studied for their proposed therapeutic uses.

Table 1 : List of Medicinal Plants used in the Formulated Homoeopathy Drugs

Plant Name	Family	Phytogeography	Habit	Plant Parts
Abroma agusta (L.) L.f.	Sterculiaceae	Indo-Malayan	Tree	Leaf, Bark
Abrus precatorius L.	Fabaceae	Pantropical	Climber	Seeds
Acer negundo L.	Aceraceae	North American	Tree	Bark
Aconitum napellus L.	Ranunculaceae	Europe	Herb	Whole plant
Adonis vernalis L.	Ranunculaceae	Europe	Herb	Whole plant
Aesculus hippocastanum L.	Hipppocastanaceae	Eurasian	Tree	Ripe nut excluding outer shell
Aletris farinosa L.	Liliaceae	North American	Herb	Rhizome & Root
Allium cepa L.	Liliaceae	Central Asian	Herb	Red mature
Allium sativum L.	Liliaceae	Central Asian	Herb bulbs	Mature bulb
Aloe soccotrina DC.	Liliaceae	Mediterranean	Herb	Leaves
Anacardium occidentale L.	Anacardiaceae	Tropical American	Tree	Black oily juice of the shell
Andrographis paniculata (Burm.f.) Nees.	Acanthaceae	Tropical Asian	Herb	Whole plant
Aristolochia serpentaria L.	Aristolochiaceae	North American	Herb	Root/rhizome
Arnica montana L.	Asteraceae	Europe	Herb	Whole plant
Atropa belladonna L.	Solanaceae	Eurasian	Herb	Whole plant
Avena sativa L.	Poaceae	Mediterranean	Herb	Seeds
Azadirachta indica A.Juss.	Meliaceae	Indo-Malayan	Tree	Seeds
Baptisia tinctoria (L.) R.Br.	Fabaceae	North American	Herb	Root
Bellis perennis L.	Asteraceae	Europe	Herb	Whole plant
Berberis vulgaris L.	Berberidaceae	Europe	Shrub	Bark of the root
Bryonia alba L.	Cucurbitaceae	Europe	Climber	Root
Caladium seguinum	Araceae	Tropical American	Shrub	Leaves
Calendula officinalis L.	Asteraceae	Mediterranean	Herb	Fresh flowering tops & Leaves

Plant Name	Family	Phytogeo-graphy	Habit	Plant Parts
Calotropis gigantea (L.) Aiton f.	Asclepiadaceae	Pantropical	Shrub	Root
Capsicum annuum L.	Solanaceae	Tropical American	Herb	Ripe fruit
Carica papaya L.	Caricaceae	Tropical American	Tree	Unripe fruit excluding seeds
Castanea sativa L.	Fagaceae	Mediterranean	Tree	Leaves
Caulophyllum thalictroides (L.) Michaux	Berberidaceae	North American	Herb	Rhizome
Centella asiatica (L.) Urban	Apiaceae	Pantropical	Herb	Whole plant
Cereus grandiflorus Mill.	Cactaceae	Tropical American	Shrub	Flower
Chelidonium majus L.	Papaveraceae	Eurasian	Herb	Whole plant
Chelone glabra L.	Scrophulariaceae	North American	Herb	Whole plant
Chionanthus virginicus L.	Oleaceae	North American	Tree	Bark
Cimicifuga racemosa (L.) Nutt.	Ranunculaceae	North American	Herb	Rhizome
Cinchona officinalis L.	Rubiaceae	Tropical American	Tree	Bark
Citrullus colocynthis (L.) Schrader	Cucurbitaceae	Mediterranean	Climber	Pulp excluding seeds
Coccinia grandis Wight & Arn.	Cucurbitaceae	Tropical Asian	Climber	Leaves
Colchicum autumnale L.	Lamiaceae	Mediterranean	Herb	Corm
Collinsonia canadensis L.	Lamiaceae	North American	Herb	Rhizome
Conium maculatum L.	Apiaceae	Eurasian	Herb	Whole plant
Convallaria majalis L.	Liliaceae	Europe	Herb	Whole plant
Coriandrum sativum L.	Apiaceae	Eurasian	Herb	Seeds
Crataegus oxyacantha L.	Rosaceae	Europe	Tree	Berries
Curcuma longa L.	Zingiberaceae	Indian	Herb	Rhizome
Cypripedium pubescens Willd.	Orchidaceae	Eurasian	Herb	Rhizome
Daphne mezereum Wallich ex Steudel	Thymeliaceae	Eurasian	Shrub	Bark
Datura stramonium L.	Solanaceae	North American	Shrub	Whole plant
Desmodium gangeticum (L.) DC	Fabaceae	Paleotropical	Shrub	Root
Digitalis purpurea L.	Scrophulariaceae	Mediterranean	Herb	Leaves
Drosera rotundifolia L.	Droseraceae	Europe	Herb	Whole plant
Echinacea angustifolia DC	Asteraceae	North American	Herb	Whole plant
Eriodictyon glutinosum Benth. L.C.	Hydrophyllaceae	North American	Shrub	Whole plant excluding roots
Eucalyptus globulus Labill.	Myrtaceae	Australian	Tree	Leaves
Eupatorium perfoliatum L.	Compositae	North American	Herb	Flowering Tops
Euphrasia officinalis L.	Scrophulariaceae	Europe	Herb	Whole plant
Ferula asafoetida L.	Apiaceae	Mediterranean	Tree	Gum resin
Gaultheria procumbens L.	Ericaceae	North American	Shrub	Leaves

Plant Name	Family	Phytogeography	Habit	Plant Parts
Gentiana lutea L.	Gentianaceae	Eurasian	Herb	Root
Gossypium herbaceum L.	Malvaceae	Tropical African	Herb	Inner bark of the root
Gelsemium sempervirens (L.) J.St-Hil.	Gelsemiaceae	Tropical American	Liane	Bark
Grindelia camporum E. Greene	Asteraceae	North American	Herb	Leaves & flowering tops
Guaicum officinale L.	Zygophyllaceae	Tropical American	Tree	Resin
Gymnema sylvestre (Retz.) Sm.	Asclepiadaceae	Paleotropical	Climber	Leaves
Hamamelis virginiana L.	Hamamelidaceae	North American	Shrub	Stem & Root bark
Helonias bullata L.	Melanthiaceae	North American	Shrub	Flowers
Hydrastis canadensis L.	Ranunculaceae	North American	Herb	Rhizome
Hypericum perforatum L.	Hypericaceae	Eurasian	Herb	Whole plant
Iris versicolor L.	Iridaceae	North American	Herb	Rhizome
Justicia adhatoda L.	Acanthaceae	Indo-Malayan	Shrub	Leaves
Lablab purpureus (L.) Sweet	Fabaceae	Tropical African	Climber	Pods, seeds
Ledum palustre L.	Ericaceae	North American	Shrub	Whole plant
Lobelia inflata L.	Lobeliaceae	North American	Herb	Whole plant excluding roots
Lycopus virginicus L.	Lamiaceae	North American	Herb	Whole plant
Mangifera indica L.	Anacardiaceae	Indo-Malayan	Tree	Fruits
Matricaria chamomilla L.	Asteraceae	Eurasian	Herb	Whole plant
Medicago sativa L.	Fabaceae	Mediterranean	Herb	Whole plant excluding roots
Melaleuca quinquenervia (Cav.) S.T. Blake	Myrtaceae	Indo-Malayan	Tree	Wood
Melilotus alba Medikus	Fabaceae	Eurasian	Herb	Flowering Tops
Melilotus officinalis (L.) Medikus	Leguminosae	Eurasian	Herb	Flowering Tops
Mentha piperita L.	Lamiaceae	Europe	Herb	Whole plant excluding roots
Myrica cerifera L.	Myricaceae	North American	Tree	Bark of the root
Ocimum tenuiflorum L.	Lamiaceae	Paleotropical	Herb	Whole plant excluding roots
Panax quinquifolius L.	Araliaceae	North American	Herb	Root
Passiflora incarnata L.	Passifloraceae	North American	Herb	Leaves
Phytolacca americana L.	Phytolaccaceae	North American	Herb	Root
Piper nigrum L.	Piperaceae	Indian	Climber	Dry unripe fruit

Plant Name	Family	Phytogeo-graphy	Habit	Plant Parts
Plantago major L.	Plantaginaceae	Eurasian	Herb	Whole plant
Polygala senega L.	Polygalaceae	North American	Herb	Root
Psycotria ipecacuanha (Brot.) Stokes	Rubiaceae	Tropical American	Shrub	Rhizome and root
Pulsatilla vulgaris Hudson	Ranunculaceae	Europe	Herb	Flowers
Pausinystalia johimbe (Schumann) Beille	Rubiaceae	Tropical African	Tree	Not known
Podophyllum peltatum L.	Berberidaceae	North American	Herb	Rhizome
Pyrus americana Marsch.	Rosaceae	Eurasian	Tree	Bark
Pilocarpus sp. (jaborandi)	Rutaceae	Tropical American	Tree	Not known
Rhododendron chrysanthum Pall.	Ericaceae	Chinese	Shrub	Leaves & flower buds
Rhus toxicodendron L.	Anacardiaceae	Chinese	Shrub	Leaves
Robinia pseudacacia L.	Leguminosae	North American	Tree	Bark of the root and stem
Rumex crispus L.	Polygonaceae	Eurasian	Herb	Rhizome
Rauvolfia serpentina (L.) Kurz	Apocynaceae	Indo-Malayan	Shrub	Root
Salix nigra Marshall	Salicaceae	North American	Tree	Leaf & flower
Sambucus nigra L.	Caprifoliaceae	Eurasian	Tree	Bark
Sanguinaria canadensis L.	Papaveraceae	North American	Herb	Rhizome
Santalum album L.	Santalaceae	Indian	Tree	Wood
Saraca asoca (Roxb.) Wilde	Caesalpiniaceae	Indo-Malayan	Tree	Bark
Senecio cineraria DC	Asteraceae	Mediterranean	Shrub	Whole plant excluding roots
Smilax regelii Killip & Morton	Smilacaceae	North American	Climber	Rhizome & Root
Solanum dulcamara L.	Solanaceae	Eurasian	Climber	Whole plant excluding roots
Stellaria media (L.) Vill.	Caryophyllaceae	Europe	Herb	Flower
Strophanthus hispidus DC	Apocynaceae	Australian	Shrub	Ripe seeds
Strychnos ignatii Berg.	Strychnaceae	Tropical Asian	Tree	Seeds
S. nux-vomica L.	Strychnaceae	Indo-Malayan	Tree	Seeds
Syzygium cumini (L.) Skeels	Myrtaceae	Indo-Malayan	Tree	Seeds
Taraxacum officinale Weber ex Wigg.	Asteraceae	Eurasian	Herb	Whole plant
Terminalia arjuna (DC) Wight & Arn.	Combretaceae	Indian	Tree	Bark

Plant Name	Family	Phytogeo-graphy	Habit	Plant Parts
Terminalia chebula (Gaertner) Retz.	Combretaceae	Indo-Malayan	Tree	Semi-mature fruit
Tribulus terrestris L.	Zygophyllaceae	Paleotropical	Herb	Whole plant
Thymus serphyllum L.	Lamiaceae	Eurasian	Herb	Leaves, Seeds
Turnera diffusa Willd.	Turneraceae	Tropical American	Shrub	Whole plant
Ulmus fulva Michx.	Ulmaceae	North American	Tree	Inner bark
Valeriana officinalis L.	Valerianaceae	Eurasian	Herb	Rhizome
Vernonia anthelmintica (L.) Willd.	Asteraceae	Tropical American	Herb	Seeds
Viburnum opulus L.	Caprifoliaceae	Eurasian	Shrub	Bark
Viburnum prunifolium L.	Caprifoliaceae	North American	Tree	Bark
Viscum album L.	Viscaceae	Eurasian	Shrub	Fresh leaves & berries
Vitex agnus-castus L.	Verbenaceae	Europe	Tree	Fruits
Withania somnifera (L.) Dunal	Solanaceae	Afro-Indian	Shrub	Roots
Zingiber officinale Roscoe.	Zingiberaceae	Indian	Herb	Dried Rhizome

Table 2 : Plant Parts used in the Formulated Homoeopathic Drugs

Sl. No.	Plant parts	No. of species
1.	Whole plant	30
2.	Leaves	17
3.	Seeds	10
4.	Ripe nut	2
5.	Rhizome or root	25
6.	Mature bulbs	2
7.	Bark	21
8.	Fresh Flowering tops	10
9.	Ripe fruit	5
10.	Unripe fruit excluding seeds	2
11.	Corm	1
12.	Pulp excluding seeds	1
13.	Gum resin	2

PHARMACOLOGICALLY IMPORTANT PLANT FAMILIES OF FORMULATED HOMOEOPATHIC DRUGS

A family wise analysis of all the 127 medicinal plants in formulated Homoeopathic drugs is carried out. Asteraceae emerges as the largest family that contributes 10 species followed by Leguminosae *s.l.* with 9 species. Ranunculaceae, Liliaceae, Solanaceae and Lamiaceae share five species each. Many plants used in Homoeopathy are either weeds or garden plants of temperate regions especially belonging to these families. An earlier analysis of 538 medicinal plants in homoeopathy also corroborates with the present analysis of 127 medicinal plants in formulated Homoeopathic drugs (Chandrakala 2000).

CLASSIFICATION OF MEDICINAL PLANTS OF FORMULATED HOMOEOPATHIC DRUGS BASED ON HABIT

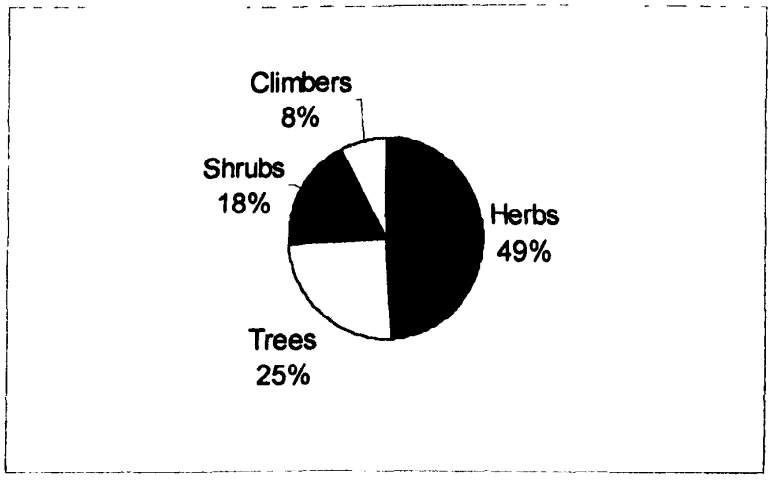

Fig. 1. Classification based on habit

Fig. 1. Gives details of habit wise classification for the plants used in formulated drugs. The dominance of herbs could be due to the predominant weed flora occurring in temperate climate. The herbs dominate the pharmacopoeia of homoeopathy. Nearly 50% of the plants used in homoeopathy are herbs. Trees rank second followed by the shrubs and climbers.

As nearly 50% of the Homoeopathic medicinal plants are herbs, whole plants are frequently used as sources of various drugs. The present analysis shows 69% of the plants used in Homoeopathy are collected in a manner that disturbs the reproductive biology and the regeneration of the species concerned. It is clear from the study that the plant parts used in various drugs of Homoeopathy contribute to the depletion of the populations.

The geographical distribution of medicinal plants recorded from the formulations during this study has been studied using floras, dictionaries and revisions. Phytogeographic studies provide us a clear picture on the distribution patterns of plants in the world. About 36% of the plant species used in formulations of Homoeopathy is native to European continent and surrounding Asian and Mediterranean regions. As many as 45 plants are native to

Table 3 : Phytogeography of Medicinal Plants used in formulated Homoeopathic drugs

Sl. No.	Phytogeographical Element	No. of species
1.	North American	34
2.	Eurasian	22
3.	European	14
4.	Mediterranean	10
5.	Tropical American	11
6.	Indo-Malayan	10
7.	Indian	5
8.	Paleotropical	4
9.	Tropical African	4
10.	Tropical Asian	3
11.	Pantropical	3
12.	Central Asian	2
13.	Australian	2
14.	Chinese	2
15.	Afro-Indian	1

North American continent and Tropical American region. Plants of temperate regions used in Homoeopathic medicine hold the largest share. 76% of the Homoeopathic plant sources are distributed in the temperate regions that include North America, Eurasia, Mediterranean, North temperate and Central Asia. Plants that are naturally occurring in India and associated tropical regions such as Indo-Malayan species are comparatively fewer in formulated Homoeopathic drugs.

Most of the formulations are used for the purpose of treating the common and widespread disorders. Many practitioners of Homoeopathic system prescribe formulated drugs manufactured by the pharmaceutical companies that specialize in Homoeopathic drugs. The list below shows health problems for which formulated Homoeopathic drugs are generally prescribed.

General debility
Cough, cold & febrifuge
Arthritis & Rheumatism
Skin disorders
Allergic diseases
Digestive disorders
Haemorrhoids

Blood pressure, Migraine & Brain disorders
Respiratory tract disorders
Hepatic/Spleenic disorders
Cardiovascular disorders
Female disorders
Diarrhoea and dysentery
Renal colic and Nephrites
Burns Cuts and Wounds
Sinusitis
Obesity, hormonal imbalance, Goitre
Spondylitis/lumbago
Dental disorders
Eye/Ear related disorders
Tonsils
Diabetes
Aphrodisiac

Another survey was conducted to understand the various aspects of Homoeopathic medicines and to explore the most frequent prescriptions given by the Homoeopathic practitioners in Tamil Nadu. A total of 28 Homoeopathic practitioners were interviewed. Based on the survey, 45 drugs have been identified that are commonly prescribed by the Homoeopathic practitioners in Tamil Nadu. Of these, 34 plant sources are commonly used as ingredients in many formulated drugs sold in the commercial outlets.

Plant sources that are predominantly used in formulated Homoeopathic drugs and homoeopathic prescriptions

Aconitum napellus L.
Aesculus hippocastanum L.
Anacardium occidentale L.
Arnica montana L.
Atropa belladonna L.
Baptisia tinctoria (L.) R.Br.
Bellis perennis L.
Bryonia alba L.
Capsicum annuum L.
Centella asiatica (L.) Urban
Chelidonium majus L.
Cimicifuga racemosa (L.) Nutt
Cinchona officinalis L.
Conium maculatum L.

Crataegus oxyacantha L.
Drosera rotundifolia L.
Eupatorium perfoliatum L.
Gelsemium sempervirens (L.) J.St-Hil
Guaicum officinale L.
Gymnema sylvestre (Retz.) Sm.
Hydrastis canadensis L.
Matricaria chamomilla L.
Passiflora incarnata L.
Psychotria ipecacuanha (Brot.) Stokes
Pulsatilla vulgaris Miller
Rhus toxicodendron L.
Rumex crispus L.
Sambucus canadensis L.
Sanguinaria canadensis L.
Solanum dulcamara L.
Strychnos ignatii Berg.
Strychnos nux-vomica L.
Syzygium cumini (L.) Skeels
Zingiber officinale Roscoe

Many of these plants are used in more than one formulation. The analysis based on the survey-conducted shows that the following medicinal plants are used in more than five formulations. This analysis also suggests that these plants are required in large quantities for the pharmaceutical industries.

Arnica montana L.
Atropa belladonna L.
Avena sativa L.
Berberis aquifolium Pursh.
Bryonia alba L.
Chelidonium majus L.
Cinchona officinalis L.
Crataegus oxyacantha L.
Echinacea angustifolia DC.
Gelsemium sempervirens (L.) J.St-Hill
Hydrastis canadensis L.
Justicia adhatoda L.
Passiflora incarnata L.
Psychotria ipecacuanha (Brot.) Stokes
Pulsatilla vulgaris Miller

Rhus toxicodendron L.
Strychnos nux-vomica L.
Withania somnifera (L.) Dunal

A countrywide detail study is required on various herbal products that would help to form policies for sustainable supply and health care.

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