

MEDICINAL & AROMATIC PLANTS

CULTIVATION, USES & ECONOMICS

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IMPORTANCE

- **Low Cost**
- **No Side Effects**
- **Easily Available**
- **Permanent Relief**
- **Increases Resistance**
- **Cultivation Highly Profitable**
- **Taken as fresh and dried as well**
- **Foreign exchange earner**

ACTION

- Spasm may relax
- Pains vanish
- Constipation overcome
- Nervous ness recede
- Headache disappear
- Allergy counteracted

HISTORY

- No authentic record of first used
- Oldest books – Rigveda, Charak Sushanta, Nighantu
- Somrus in ancient times as stimulating agent but still not found
- Book by Darwin – Plant & Animal
- Materia Medica by Greece, Roman, Ezyptians, Jews, Babyloouians, Persian, Chinese & Arabs

IN INDIA

- Asiatic Society of Bengal
Botanical Garden, Calcutta
- Materia Medica of Hindustan in 1813
- Materia Indica in 1826
- Bengal Dispensary Book in 1842
- Materia Medica of Patna in 1848
- Bombay Flora in 1862
- Bombay Drug in 1879

SYSTEM OF MEDICINES

- Allopathy
- Ayurveda
- Unani
- Sidha
- Homeopathy

PARTS USED

Roots:

Chirchiri, Kaju, Sarifa, Kadam, Safed Musli, Satawar, Talmakhana, Coleus, Kali Musli, Hing (root resin), Silver Oak, Pride of India, Lajwanti, Drum stick, Mucuna, Kutki, Bari Pipal, Plumbago, Punica granatum (Anar), Ashwagandha, Sarp Gandha etc.

Root Bark:

Bael, Kathal, Chandni, Phalsa, Bakain, Munga, Kaner, Plumbago, Plumeria, Ashok etc.

Bark:

Khair (Acacia catechu) Bael, Sirish, Kaju, Kadam, Bauhinia, Palas, Erythrina, Juniperus, Cagersfroenia, Bakain, Michelia, Madhukamini, Harsingar, Ashok, Shami, Chandan

Stem:

Babool, Camphor, Guggul

Leaf

Shikakai (*Acacia concinna*), Babool, Adhusa, Agave, Aloe (*Ghritkumari*), Chhatwan, Sarifa, Talmakhna, Buhinia, Patharchur, Bhang, Cassia, Catharanthus, Kapur, Lemon grass, Citronella, Palmarosa, Erithrina, Gymnema (*Madhunasini*), Juniperus, Henna (*Lawsonia*), Bakain, Curry leaf, Tulsi, Oxalis, Portulaka, *Quisqualis indica* etc.

Fruit:

Babool, unripe fruit of Bael, Kaju, Sarifa, Kadam, Hingota, Capsicum, Papaya, Cassia, Datura, Aonla, Citrus, *Ficus carica*, Phalsa, Munga, Mulburry, Tulsi, Rashbhari, Bari pipal

Seed:

Babool, Bari Elaichi, Choti Elaichi, Supari, Palas, Datura, Jatropha, Jajoba, Chandrachur, Linum (Alsi), Nagkesher, Mosinga, Mucuna, Nutmeg (Jaiphal) Black cumin, Tulsi, Babchi (*Psorelea corylifolia*), Putranjiva, Rangoon creeper Arandi,

Flower:

Kadam, Bauhinia, Palas, Sadabahar, Hibiscus, Jasmine, Rose, Nagkesher

Whole plant:

Chirchiri, Kalmegh, Anantmul, Margosa, Bacopa, Lajwanti, Rakta, Punarnava, Malkagni, Bengsag (*Centella asiatica*) Shankhpuspi, Cynodon, Digitalis, Bhringraj, Euphorbia, Ficus bengalensis, Ficus religiosa, Ficus glumerata, Mentha, Oxalis, Bhui Aonla, Pan, Chiraita, Portulaka

Rhizome:

Bach, Kush (Costus), Curcuma amada,
Curcuma domestica, Cyperus rotundus,
Dioscorea, Gloriosa, Superba, Kutki

Bulb:

Onion, Lahsun (Garlic), Belladonna,
Amorphophallus, Corm, Mulethi.

Diseases and Medicinal Plants
Some Examples

Skin Care:

Scabies, Acne (Pimples), Fungal infection, Lice infestation, Eczema, Irritation of skin, Ringworm, etc.

Plants:

Babool, Banyan, Palas, Amaltas, Hare , Dalchini, Coriander, Henna, Basil, Mahua, Neem, Chandan, Turmeric, Vasaka, Ashwagandha, Chandni, Lal Dudhi, Ghritkumari, Linseed, Marigold, Saffron, Ratti, Khair, Ishwari, Kalmegh, Bhang, Deodar, Ama haldi, Nagarmotha, Pipal, Small Cardemom, Nigilla, Aparajita, Karaila, Kaner, Kachnar, Guggul, Rose, Ritha, Methi, Lemon, Rice, Almond, Imli, Galanga etc.

Cough and Cold:

Adhatoda, Aloe, Areca, Bacopa, Baulinia, Centilla, Cinnamomum, Dhania, Ama haldi, Haldi, Amarbel, Rosagrass, Kala Datura, Digitalis, Bhringraj, Choti Elaichi, Embelia (Bay Bidang), Euphorbia, Hing, Mulethi, Gurmar, Hibiscus, Mehndi, Bakain, Lajwanti, Maulsiri, Karaila, Nutmeg, Tulsi, Pipali, Kali mirch, Arandi, Arjun, Bahera, Hare, Water chestnut.

Fever:

Adusa, Bael, Aloe, Kaju, Sitaphal, Anantmul, Nagdaman (Artimissia), Talmuli, Bacopa, Cassia, Centella, Indrayan (Citrullus colocynthis), Citrus, Clerodendron, Coccinia, Dhania, Costus, Jeera, Curcuma, Lemon grass, Rosagrass, Nagarmotha, Kala Datura, Digitalis, Erythrina (Hadua), Euphorbia antiquorum (Thuar), Saunf, Kalihari, Silver oak, Suryamukhi, Anantmul, Hibiscus, Pride of India, Mentha, Karaila, Parwal, Kamal, Kaner, Tinpatia (Oxalis). Babchi, Putranjiva, Rose, Chandan, Makoy, Jamun, Angur.

Cancer

Kanak Champa (Plumeria acutifolia), Chiraita, Doob grass, Bhringraj, Agave, Anantmul, Kamila (Maliotus) Kaphal (Myrica), Ashok, Kaner (Nerium), Chitrak (Plumbago zeylanica)

Improved Varieties of some medicinal and aromatic plants

Stevia (*Stevia rebaudiana*)

S.R.B. 123 - 5 cuttings per year
9-12% glucosides

S.R.B. 512 - 4 cuttings per year
9-12% glucosides

S.R.B. 128 - 21% glucosides

M.D.F. 13

M.D.F. 14

Ashwagandha (*Withania somnifera*)

Jawahar Asgandh 20 – highest dry root yield
500 kg/ha

+ 50-75 kg seed

Jawahar Asgandh 123 -

W.S.R. 90-100

Jatropha curcus (*Ratanjot*)

RJ - 117

GIE Nagpur

Barmunda

SDAUJ1

Bhumy amalaki (Phyllanthus amarus)

Navyakrit - Very high herbages for
extraction of phyllanthin.

Sada Bahar (*Catheranthus roseous*)

Nirmal - Resistant to collar rot and
root rot

15 varieties by IIHR Bangalore

Mulethi (*Glycoriza glabra*)

- EC 111236 - High yielding
- Haryana Mulethi No. 1 - Root length up to 2 mt.
- High glicirisin

- HM 1

Datura (*Datura lineaus*)

- RRL purple - Whole plant purple
- 240-290qt. Green leaves/ha
- + 18-24 qt. Seed
- 0.24-0.36% Alkaloid in seed
- 0.12-0.19% " " "

- RRL green - Plant green in colour
- 210 qt. green leaf/ha
- + 15-20 qt. Seed/ha
- 0.24-0.28% Alkaloid in seed
- 0.09-0.13% " " "

Isabgol (*Plantago ovata*)

Patan - good yielder

Gujrat Isabgol No. 1

Gujrat Isabgol No. 2

Sale -10

EC 124

EC 345

Mentha (*Mentha arvensis*)

MAS-1

HY -77

Shivalic - more common among
farmers

Himalaya - high menthal conteut

Lemon grass (*Cyimbo citratus*)

OD	-	19	high citrol
Pragati			
Praman			
Krishna			
CKV	-	25	

Aonla (*Emblica officinalis*)

Varanasi	-	old variety, big fruit, Eggshaped high yellow good var.
Krishna	-	fruits 40g
NA – 7	-	
NA – 9	-	fruits 45-50g
Chakaiya	-	30-40g
Kanchan	-	32g fruits
Francis	-	40-42g fruits

Jawa grass (*Cymbopogon nardus*)

Bio - 13

Mandakani

RRLB - 15

Jor Lab C-2

Pama Rosa (*Cymbopogon martini*)

Trishna - Grass – 300-400/ha/yr

Tripta - Oil – 125-150kg/ha/yr

IW - 31243

Haldi (*Curcuma*)

Patna

Minapur - Medium

Rajendra Sonia - High curcumin

Krishna

Kasturi

Sugandham

Suvarna

Roma

Suroma

Sudarshana

Ranga

Rashmi

Adrak (*Zingibar officinale*)

China

Samastipur

Suprabha

Suruchi

Surabhi

Papaya

Co 1

Co 2

Co 3

Co 4

Honey Dew

Pusa Majesty

Pusa Joint

Pusa Dwarf

Pant Papaya-1

Pant Papaya-2

**Economics of Cultivation
of Some Medicinal Plants**

ASHWAGANDHA

Unthamia somnifera – Solanaceae

Plant parts used – Roots

Uses : artheritis, asthma, bronchitis, cancer cold, cough, cystitis, dibility, diasrhea, dropsy, fever, hypertension, nerves, mental.

Cropping season – July to February

Economics of cultivation/hectare (2 ½ acers)

Preparation of land	-	1500/-
Seeds (5kg) & sowing	-	1000/-
FYM + fertilizer	-	1500/-
Irrigation	-	500/-
Thinning & weeding	-	1000/-
Crop protection	-	500/-
Harvesting & grading	-	2500/-
Misc.	-	1500/-
		Rs. 10,000=00
Return – Dry roots – 6 ot @ 6000/qt.	-	36000/-
Seed – 30 kg @ 100/kg	-	3000/-
Total Rs.		= 39,000=00
Net income – 39000/- 10000 = 29000/- per ha		
		or 11500/- per acer

KALMEGH

Andrographis paniculate - Acanthaceae

Plant parts used - Whole plant

Uses : astringent, anti inflamatory, dysentary, diasrhoea, cholera, fever, diabetic, bronchitis, itches, influenza, hypertension, piles, gynorrhoea, jaundice, dyspepsia, anthelunitic

Cropping season – June -July

ECONOMICS OF CULTIVATION/HA

Cost of seed (800g)	-	2000/-
Raising nursery	-	500/-
Land preparation	-	2000/-
FYM+Fertilizer	-	2500/-
Transplanting of seedlings	-	1000/-
Irrigation	-	1000/-
Harvesting (2 harvest/yr)	-	1500/-
Drying & packing	-	1500/-
Misc.	-	1000/-
Return : Herbs 35 Qt @ Rs. 1500/qt	-	47500/-
Net Return – 47500-13000/-	-	34500/ha
Or	-	13000/acer

BRAHMI

Bacopa monnieri - Scrophulariaceae

Plant parts used - Whole plant

Uses: Nerve tonic, insanity, epilepsy, mental disorder, increasing memory, aperient, diuretic, asthma, rhenmatisation, inflammation of joints, fever, cardiotoxic, snake bite.

Cropping season – Rainy season –perrinial crop

Economics: per ha.

Preparation of land	-	2000/-
FYM- 250 Qts	-	12000/-
Fertilizer	-	2000/-
Transplanting of cuttings	-	2500/-
Planting material	-	5000/-
Irrigation (5-10 times)	-	5000/-
Weeding (2-3 times)	-	3500/-
Harvesting (2 times)	-	3500/-
Drying, Storing & packing	-	10000/-
Misc.	-	3500/-
Total Rs.	=	40000/-

Return per ha. –

Shade dried yield from first harvest	-	60 Qt.
Shade dried yield from second harvest	-	<u>40 Qt.</u>
Total dry matter	-	100 Qt.
Gross return @ 4000/- per Qt.	-	4,00,000/-
Net Return	-	4,00,000-50,000 = 3,50,000/- per ha.
Or	-	1,40,000/- acer

CHAMOMILLA

Matricaria chamomilla

Plant parts used - Flower

Uses: Antiseptic, cream for around healing expectorant, carminative, anthelmintic, sedative, diuretic.

Oil – hair dyes, dermatitis free clothing, flavouring alcoholic & non alcoholic drinks icecreams & baked foods, high grade perfumes

Planting season – October

Cost of production: per ha.

Cost of seed (600g)	-	600=00
Nursery preparation	-	500=00
Land preparation	-	2000=00
FYM	-	2000=00
Transplanting	-	1000=00
Irrigation	-	1500=00
Weeding	-	1800=00
Harvesting Of flowers	-	13500=00
Drying of flowers	-	1000=00
Misc.	-	<u>1100=00</u>
Total Rs.	=	25000=00

Return – 10 Qts @ 5000/qts – 50000/-

Net profit – 25000/- ha or 10000/- acer

Income from oil yield 5 kg @ 30000/- kg – 1,50,000/-

Cost of distillation & transporting – 25000/-

Net profit/ha – 1.00 lakh or 40000/- per acer