

Oilseeds: *Sesamum* showed variation in phyllotaxy, number of locules, maturity and seed colour. *Brassica* showed variation in seed size and maturity. *Linum* and *Guizotia* sp. showed no morphological variation amongst the accessions. *Ricinus* sp. showed variation for seed size and seed colour.

Vegetables: The 32 accessions over 15 species of vegetable crops showed diversity. The tomatoes grown on fencings of kitchen garden by the farmers although small in size but offers tremendous variation with regard to number of fruits/inflorescence, plant vigour, yielding ability and availability of berries for longer duration. The brinjal grown in village Barman district Narsinghpur is famous for its size and less seeds. It is preferred for making *bharta*.

Fibre: The genera *Hibiscus* and *Crotolaria* exhibited variation in flower colour and fruit size. The evaluations along with existing germplasm will show the true assessment of variability.

Wild and weedy relatives: The wild relatives of cultivated *Cajanus* sp., *Vigna* sp. and *Sesamum* have been collected and deposited in national genebank.

Fruit plants: Only one accession of *Emblica* sp. has been collected. The seed material is being sent to National Active Germplasm Site (NAGS) for evaluation.

Reference

- Shrivastava U and PL Gautam (1999) Plant germplasm collecting in India: present status, gaps in collection and future strategies, *Indian J. Pl. Genet. Resour.* 12: 123-147.

Potential Medicinal Plants of Eastern Ghats (Orissa)

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The eastern ghat hill ranges lies between 11° 30' and 22° N latitudes and 76° 50' and 86° 30' E longitude along the East coast of India. Floristically the region is enriched with about 2000 species of flowering plants comprising 13 % of the Indian elements (Nayar, *et al.* 1984). The chain of hill ranges of Eastern ghat in Orissa is rich repository of medicinal plants. Because of habitat degradation and over-exploitation of medicinal plants these resources are becoming scarce which needs systematic and scientific exploitation in a sustainable manner. Besides these the indigenous knowledge possessed by the local vaidyas, medicine men who are, rich source of information also needs to be documented in the changing IPR regime. With the above points in view, a study was made for survey and enumeration of important medicinal plants of Eastern ghat in Orissa. The present study is a preliminary step for screening potential medicinal plants present in the nature for traditional system of medicine.

The present paper is the result of the study done during 1999-2001. During this period, several exploration trips were conducted covering most part of the areas. The information's were collected from the local vaidyas, elder people and the medicine men of the concerned

area which were further compared with the information from various sources (Chopra, Nayar and Chopra, 1956, Chopra and Verma, 1969; Asolkar, *et al.* 1992). Besides this, we also studied the importance of medicinal plants used by the local people in their daily life. In total, information on 51 potential medicinal plant species collected during the exploration is documented and the species are enumerated with their botanical name, family, plant parts, disease, phenology and distribution. The plants were identified with the help of the flora of Orissa (Saxena and Brahmam, 1994-96). The collected germplasm are preserved in the field gene bank at NBPGR Base Centre, Cuttack.

In the present study, 51 useful medicinal plants of the Eastern ghat in Orissa are documented. It has been observed that these medicinal plants are economically important to the tribal people for various ailments. On investigation, it was found that formulations of medicinal plants either alone or in combination are used for various ailments. Disease-wise information of some plants is mentioned below and the list of the plants with their uses are given (Table 1).

Abortifacient—*Abrus precatorius*, *Aristolochia indica*, *Clitoria ternatea*, *Celastrus paniculatus*, *Withania*

Table 1. List of plant species with their uses

Botanical name	Phenology	Plant parts	Medicinal uses	Distribution
<i>Abrus precatorius</i> (Fabaceae)	Fl- Aug.- Sept. Fr-Nov.-March	Seeds, Roots	Easy abortion of foetus, snake bite	Similipal, Boudh Gandhamardan, Bolangir, Sonepur
<i>Achyranthes aspera</i> (Amaranthaceae)	Fl. and Fr.- Oct.- Feb.	All parts	Stomach pain, fever, contraceptive, headache	Kandhamal, Boudh Bolangir, Sonepur
<i>Andrographis paniculata</i> (Acanthaceae)	Fl. and Fr. – Sept. – May	All parts	Blood purification, excessive bile check-up	Dhenkanal
<i>Argyrea speciosa</i> (Convolvulaceae)	Fl.–July – Sept. Fr- Nov.-April	Roots, Leaves	Nervous system, wounds, skin diseases	Aska, Ganjam
<i>Aristolochia indica*</i> (Aristolochiaceae)	Fl. – July- Oct. Fr- Nov.- Feb.	Roots, Seeds	Abortifacient, cough	Mayurbhanj, Koraput, Sambalapur,
<i>Asparagus racemosus</i> (Liliaceae)	Fl.- Sept.- Oct. Fr- Nov.- Dec.	Tuber, Roots	Aphrodisiac, total strength, skin disease, dysentery	Similipal, Phulbani Gandhamardhan, Dhenkanal,
<i>Caesalpinia crista</i> (Caesalpinaceae)	Fl.–Feb.-April Fr.-April- May	Leaves, Seeds	Asthma, snake bite, swelling	Gandhamardhan
<i>Calotropis gigantea</i> (Asclepiadaceae)	Fl.-Dec.- July Fr- Feb.- June	Bark, Roots	Cold, cough, asthma, snake bite, rheumatism	Similipal
<i>Celastrus paniculatus</i> (Celastraceae)	Fl.-April-June, Fr- Oct.-Jan.	Bark, Leaves, Seeds	Abortifacient, cold, gout oil- mosquito repellent, rheumatism	Similipal
<i>Centella asiatica</i> (Apiaceae)	Fl. and Fr. – Throughout the year	Leaves	Memory power, eye trouble, fever	Similipal
<i>Chloroxylon swietenia</i> (Rutaceae)	Fl. – March - April, Fr.-May- June	Leaves, Seeds	Healing wounds, Rheumatism	Mahendragiri, Ganjam, Angul
<i>Cissampelos pareira</i> (Menispermaceae)	Fl. June - Nov. Fr- Nov.- Jan.	Roots, Leaves	Inflamation, wounds, eye troubles, boils	Dhenkanal and Similipal
<i>Cissus quarangularis</i> (Vitaceae)	Fl. and Fr.- April- Jan.	Stem, Roots	Fracture bones, eye diseases	Similipal, Anugul Dhenkanal
<i>Clitoria ternatea</i> (Fabaceae)	Fl.- July- Oct. Fr- Nov.-Dec.	Roots	Abortion, snake bite	Dhenkanal and Gandhamardhan
<i>Coleus amboinicus</i> (Lamiaceae)	Fl. and Fr.- Oct.- Dec.	Leaves	Scorpion sting, urinary disease	Dhenkanal, Ganjam Phulbani
<i>Costus speciosus</i> (Costaceae)	Fl. and Fr.- July –Dec.	Rhizomes	Dysentery, diagestive trouble	Eastern ghat
<i>Curculigo orchoides**</i> (Amaryllidaceae)	Fl.-April- Sept.	Rhizomes	Cuts, skin disease, headache, good health	Dhenkanal
<i>Datura metel</i> (Solanaceae)	Fl. and Fr.- Throughout the year	Leaves, Roots, Seeds	Cough, asthma, making liquor, toothache	Gandhamardhan, Similipal, Dhenkanal
<i>Datura stramonium</i> (Solanaceae)	Fr.- Nov.	Flower, Fruits	Earache, dandruff falling hair	Sambalpur
<i>Desmodium gangeticum</i> (Fabaceae)	Fl. and Fr. – May - Jan.	Roots	Fever, cough, vomiting, asthma	Dhenkanal, Bolangir, Boudh
<i>Diplocyclos palmatus</i> (Cucurbitaceae)	Fl. and Fr. – Oct.- Jan.	All parts	Conception, swelling, increase sperm quality	Similipal, Koraput, Dhenkanal, Gandhamardhan

Botanical name	Phenology	Plant parts	Medicinal uses	Distribution
<i>Eclipta alba</i> (Asteraceae)	Fl. and Fr. – Aug.- April	Leaves, Roots	Cattarrh in infants, ulcers and wounds in cattle	Eastern ghat
<i>Gloriosa superba**</i> (Liliaceae)	Fl.-Sept.- Nov. Fr.- Nov.- Dec.	Roots	Leprosy, piles, snake bite, scorpion sting	Ghantasila, Koraput, Ganjam, Mahendragiri
<i>Gymnema sylvestre**</i> (Asclepiadaceae)	Fl.-Aug.- Oct. Fr.-Jan.-March	Leaves, Roots	Effective in diabetes, stomach pain	Similipal, Ganjam, Bolangir, Boudh Gandhamardhan
<i>Holarrhena antidysenterica</i> (Apocynaceae)	Fl.-May- July Fr.-Oct.- Feb.	Bark, Seeds	Curing amoebic, antidysenteric, dropsy, headache, fever	Similipal
<i>Hygrophila spinosa</i> (Acanthaceae)	Fl. and Fr. – Oct.-Feb.	Seeds, Leaves	Jaundice, anasarca urinogenitaltract, dropsy	Dhenkanal
<i>Kalanchoe lacinata</i> (Crassulaceae)	Fr.- April	Leaves	Insect bite, dysentery	Similipal, Sambalpur
<i>Mucuna pruriens</i> (Fabaceae)	Fl- Sept.- Nov. Fr.- Jan.- April	Seeds, Roots	Dropsy, purgative, elephantiasis	Similipal
<i>Ocimum basilicum</i> (Lamiaceae)	Fl. and Fr- Sept.- June	All parts	Dysentery, diarrhoea, bowel complaints of children, cough	Sambalpur, Similipal, Batipathar, Grishchandpur
<i>Ocimum sanctum</i> (Lamiaceae)	Fl. and Fr.- Dec.- Jan.	All parts	Genito urinary system, antibacterial, mosquito repellent, insecticidal	Similipal
<i>Oroxylum indicum</i> (Bignoniaceae)	Fl. July- Aug. Fr-Dec.-March	Bark, Stem, Seeds	Hydrocele problem, astringent, oil used for earache	Similipal, Boudh Dhenkanal, Ganjam, Koraput, Bolangir, Sonepur, Gandhamardhan
<i>Paederia scandens</i> (Rubiaceae)	Fl. –Aug.- Oct.	Leaves	Diarrhoea, bowel trouble	Similipal
<i>Phyllanthus emblica</i> (Euphorbiaceae)	Fl.- Feb.- May Fr. Oct. - April Deciduous- May - April	All parts	Laxative, diarrhoea, jaundice, cough, asthma	Gandhamardhan
<i>Plumbago rosea</i> (Plumbaginaceae)	Fl.and Fr.- Nov.-March	Roots	Scabies, oil useful in rheumatism and paralysis	Ajayagada, Mahendragiri, Ganjam
<i>Plumbago zeylanica</i> (Plumbaginaceae)	Fl. and Fr.- Sept.- April	Roots	Appetizer, epilepsy, ulcers, rheumatism, chest pain	Dhenkanal
<i>Pterocarpus santalinus</i> (Fabaceae)	Fl.- Apr.- July Fr.-Aug.- Oct.	Wood	Strengthening the sight, inflammation, headache, inbiliousness, skin disease	Similipal
<i>Rauwolfia serpentina*</i> (Apocynaceae)	Fl. and Fr.- May - Nov.	Roots, Leaves	Reduces blood pressure, antidote to insect and snake bite	Gandhamardhan
<i>Scindapsus officinalis</i> (Araceae)	Fr.- June- July, Fr.- Jan.	Fruits, Seeds	Rheumatism, asthma bronchitis, menstrual disorders	Similipal, Malayagiri, Dhenkanal
<i>Smilax macrophylla</i> (Liliaceae)	Fl.- Apr.- July Fr.- Oct.- Jan.	Roots	Blood less dysentery, venereal disease, rheumatism	Similipal
<i>Solanum xanthocarpum</i> (Solanaceae)	Fl. and Fr.- All the year round	All parts	Cough, asthma, sore throat, toothache, vomiting	Similipal
<i>Strychnos nux-vomica</i> (Loganiaceae)	Fl.- Mar.- Apr. Fr.- Dec.- Jan.	Roots, Bark, Leaves	Febrifuge, useful in homeopathic system	Similipal, Dhenkanal, Nayagarh, Rayagada

Botanical name	Phenology	Plant parts	Medicinal uses	Distribution
<i>Strychnos potatorum</i> (Loganiaceae)	Fl.-May Fr.- Oct.- Dec.	Seeds	Eye disease, diabetes, dysentery, gonorrhoea	Similipal, Ganjam Kalahandi, Sambalpur, Gandhamardhan
<i>Terminalia bellirica</i> (Combretaceae)	Fl.- Mar.-May Fr.- Oct.- Dec.	Fruits	Piles, dropsy, headache sore throat	Similipal, Gandhamardhan, Dhenkanal
<i>Terminalia chebula</i> (Combretaceae)	Fl.-Mar.-April Fr.-Nov.- Dec.	Fruits	Cold, cough, skin disease	Dhenkanal, Similipal, Gandhamardhan
<i>Tinospora cordifolia</i> (Menispermaceae)	Fl.- Aug.-Dec. Fr.- Mar.-May	Stem, Roots	Chronic diarrhoea, dysentery, malaria	Dhenkanal
<i>Trichosanthes bracteata</i> (Cucurbitaceae)	Fl.-Aug.-Sept. Fr.-Nov.- Dec.	Fruits, Roots	Rheumatism, oil used to cure hemicramia,	Dhenkanal
<i>Urginea indica</i> ** (Liliaceae)	Fl. -Mar.- May Fr.- May - July	Bulb	Bronchial catarrh, chronic dysentery	Dhenkanal, Bolangir, Mayurbhanj, Bargad, Gandhamardhan, Kalahandi
<i>Valeriana officinalis</i> (Valerianaceae)	Fl. and Fr.- Aug.- Nov.	Roots	Stimulant, antiseptic, hysteria, epilepsy	Mahendragiri
<i>Vernonia anthelmintica</i> (Asteraceae)	Fl.- Sept.- Dec. Fr.- Nov.- Jan.	Seeds	Asthma, skin disease, scorpion sting	Similipal
<i>Wedelia chinensis</i> (Asteraceae)	Fl and Fr.- Sept.- April	All parts	Hair growth and dyeing, cough, menorrhagia	Aska, Ganjam, Mahendragiri
<i>Withania somnifera</i> (Solanaceae)	Fl. and Fr.- Oct.-May	Roots, Leaves, Seeds	Abortifacient, debility from old age, painfull swelling	Dhenkanal

Note: Fl: flowering, Fr-Fruiting * Endangered, ** Vulnerable

somnifera, Antidote to snake venom – *Rauwolfia serpentina*, Diabetes – *Gymnema sylvestre*, *Strychnos potatorum*, Dandruff, falling hair or madness – *Datura stramonium*, Epilepsy – *Valeriana officinalis*, *Plumbago zeylancia*, Jaundice – *Phyllanthus emblica*, *Hygrophila spinosa*, Fever – *Achyranthes aspera*, *Strychnos nux-vomica*, Menstrual disorder- *Scindapsus officinalis*, Paralysis – *Plumbago rosea*, Snake bite – *Clitoria ternatea*, *Caesalpinia crista*, *Gloriosa superba*, *Calotropis gigantea*, Urinary discharge – *Coleus amboinicus*.

Due to extensive use of the species and deforestation, the natural populations of medicinal plant resources are becoming scarce and vanishing. Out of the total collections two species viz.- *Rauwolfia serpentina* and *Aristolochia indica* are endangered and four species viz.- *Curculigo orchioides*, *Gloriosa superba*, *Gymnema sylvestre* and *Urginea indica* are vulnerable. Thus, there is an urgent

need for systematic and scientific exploitation in a sustainable manner, for conservation and long-term use of rare species of the region.

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