



Some common ethno-medicinal plants of Odisha used in the preparation of homeopathic drugs

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Abstract

During the ethnobotanical investigation a total of 83 plant species were identified which belong to 75 genera and 44 families. Among the documented floral types 21 are trees, 9 shrubs, 13 climbers, 34 herbs, 2 hydrophytes, 1 insectivorous, 1 gymnosperms, and 2 pteridophytes. Fabaceae and Lamiaceae have been assessed as the dominant family with 6 species each followed by Euphorbiaceae having 5, Solanaceae, Cucurbitaceae, Apocynaceae and Liliaceae having 4 species each respectively. *Ocimum* and *Terminalia* are the prominent genera represented by 3 species each followed by *Allium*, *Ficus*, *Phyllanthus* and *Solanum* having 2 species each. In the present communication the plant species are arranged in alphabetical order followed by the name of the family, local name and their ethnomedicinal uses as well as their incorporation in Homeopathic system of medicine to treat various diseases. The investigation also revealed that *Acalypha indica*, *Aegle marmelos*, *Azadirachta indica*, *Strychnos nux-vomica*, *Lycopodium cernuum*, *Datura stramonium* and *Phyllanthus urinaria* widely used in Homeopathy are available abundantly in the study area while *Rauwolfia serpentina* and *Saraca asoca* are scarce and in the verge of extinction. *Andrographis paniculata*, *Ranunculus scleratus*, *Embelia ribes*, *Operculina turpethum* and *Pterocarpus marsupium* are in threat due to their wide use by the local populace for their primary healthcare. So, care should be taken for their preservation and propagation.

Keywords: ethnomedicinal plants, Odisha, homeopathy

1. Introduction

Plants have been used as medicines since the period of 'Rig Veda' (4500-1600 B.C.). It is said that for every disease there exists a plant in the nature which cures it. There are diseases which are typical of some countries and interestingly, plants that can cure such diseases also grown in that environment. Curative plants are, thus, the most valuable 'nature's gift' to the suffering humanity; it is only the local physicians or the medicine men, who can correctly identify them. Over the years, the natives confined to specific geographic pockets and also the a tribal populace living in the rural areas have developed some knowledge of utilizing such 'healing' plants traditionally as house-hold remedy.

Also, common medicinal plants, either as a whole or as plant part(s), have been in therapeutic practice in one form or another, under indigenous system of medicine like 'Ayurveda', 'Siddha' and 'Unani'. In addition to these indigenous usages, extracts of several such plants have formed the basis for 'Homeopathy' which emerged as another established curative system. Homeopathy is a type of complementary and alternative medicine. The word 'Homeopathy' comes from the greek word – 'Homoiōs' (means like) and 'Pathos' (means suffering). It was first started by German physician Samuel Hahnemann, which is based on his doctrine of *like cures like* (*similia similibus curentur*), whereby a substance that causes the symptoms of a disease in healthy people will cure similar symptoms in sick people [1]. The origin of Homeopathic system of medicine dates from as early as in 1813 AD in Germany. In India, Homeopathy as a system of medicine was introduced first by the British in West Bengal [2]. Ever since its introduction in India, it has gained good importance and enjoyed patronage by local traditional practitioners.

Homeopathy has become more popular in India because people are beginning to realize that orthodox medicine does not cure all diseases and that many of its treatments have mostly side effects. Homeopathic medicines treat diseases harmlessly [3]. It is note-worthy to mention here that most of the Homeopathic medicinal plants are ubiquitously found in tribal-rich districts of Odisha. The tribal-rich districts of Odisha such as Sundergarh, Keonjhar, Mayurbhanj, Koraput, Angul, Dhenkanal, Kandhamal and Jajpur with their wide range of agro-climatic conditions forms a cradle land for the occurrence of several medicinal plants. In recent years Homeopathic System of Medicine and herbal drugs has gained much popularity and preference over heavily flourishing synthetic drugs and antibiotics, since the former are comparatively harmless and can provide long standing or total cure of various diseases.

Every system of medicine including indigenous systems or the homeopathic system utilizes plants or parts thereof as medicines in healing diseases but only the way the drug is prepared is different. In recent times, considerable attention has been paid to utilize eco-friendly and bio-friendly plant-based products for the prevention and cure of different human diseases. It is documented that now 80% of the world's population has an increased faith in traditional medicine, particularly plant-based drugs in primary healthcare, because of their minimum known adverse side effects. The use of traditional systems of medicine gives cost effective as well as safe health care solutions to the people of India [4].

There are over 2000 drugs used in 'Homeopathy', of which majority are of plant origin with an approximately 40% from plants occurring naturally in India. During last two decades many Indian drugs have been incorporated into the realm of 'Homeopathy'. It may be mentioned here that in

homoeopathic system of medicine, very small quantity of the crude drug (about 50 g dry matter of plant) is required to prepare the medicines (500 ml mother-tincture) which can treat 50 patients. Thus, this system is very economical in addition to being eco-friendly. The objective of this study was to explore, identify and document the familiar ethnomedicinal plants occurring in some selected tribal-rich districts of Odisha having application in Homoeopathic system of medicine. The utilization of 83 potential ethnomedicinal plants are found used in homoeopathic system of medicines is described in this article.

2. Material and Methods

The materials for the present study form a collection of plants from different seasons at various tribal-rich districts of Odisha, India during 2007-2012. These plants were identified and confirmed with the authentic herbarium housed in Post Graduate Department of Botany, Utkal University, Bhubaneswar, Odisha and deposited in V.N. Autonomous College, Jajpur Road, Odisha, India. The plants are arranged in alphabetical order followed by synonym (if any), Accession No., the name of the family, local name and their ethnomedicinal uses as well as their incorporation in Homoeopathic system of medicine [5, 6, 7, 8, 9, 10] to treat various diseases.

The present chapter describes the study area, description of the study sites, methodology of survey, plant collection, herbarium preparation, plant identification and collection of data on medicinal use of plants. The study was carried out during 2007-2012 covering tribal-rich areas in Sundergarh, Keonjhar, Mayurbhanj, Koraput, Angul, Dhenkanal, Kandhamal and Jajpur districts of Odisha. A general survey method with well-planned questionnaire was followed for the collection of ethnomedicinal information from the herbal practitioners as well as elderly knowledgeable persons. Several field trips were conducted to interview the local herbal healers and tribal medicine men and women to collect the information regarding the mode of uses of the plants to treat various diseases. The voucher specimens of ethnomedicinal plants were collected, identified and preserved in the form of herbarium specimens.

Plant collection and Herbarium studies

Plant species were mostly collected in flowering and fruiting condition as with the reproductive characters it become easy to ascertain the exact identification of the species. The specimens were collected in sets of 3 with a field number to choose the best specimen for making herbarium. Important characters such as flower colour, presence of bracts and bracteoles, etc. were noted down in the field note as these characters may not be evident or lost after drying. Customary procedures followed for the

preparation of herbarium for long term preservation as well as for further study and reference.

Plant Identification

The plant specimens were studied in the field itself while fresh for ascertaining their identity. In case of difficulty, the specimens were brought to Department of Botany, V.N Autonomous College, Jajpur Road, Odisha for thorough study and identification. The salient features of the plant specimens were noted down. After critical study, the specimens were identified following 'The Botany of Bihar and Orissa' [11], The Supplement to the Botany of Bihar and Orissa [12] and 'The Flora of Orissa' [13]. Finally, the identified plants were authenticated consulting the authenticate specimens of Department of Botany herbarium, Utkal University, Bhubaneswar, Odisha. Botanical identification by local names were avoided as these vary from place to place.

3. Result

Many interesting tribal uses of medicinal plants were documented during investigation, some of which have also been found used in the preparation of Homoeopathic and Ayurvedic medicines. The data collected on medicinal uses of plants during the present investigation are presented in Table 1. The botanical names of the plants are arranged in alphabetical order followed by the name of the family, local name and their ethnomedicinal uses as well as their incorporation in Homoeopathic system of medicine to treat various diseases. The present article describes a total of 83 popular ethnomedicinal plant species belonging to 75 genera under 44 families being used in the preparation of Homoeopathic drugs (Table 1). The habit-wise groupings of the plant species shows 47 % are herbs, 11 % shrubs, 26 % trees and only 16% are climber (Table 2). Among the families, Fabaceae and Lamiaceae each with 6 species are the dominant families followed by Euphorbiaceae (with 5 species), Solanaceae (with 4 species), Cucurbitaceae (with 4 species), Apocynaceae (4 species) and Liliaceae with 3 species respectively (Table 3). The data collected during the investigation also revealed that plant species such as *Acalypha indica*, *Aegle marmelos*, *Azadirachta indica*, *Strychnos nux-vomica*, *Lycopodium cernuum*, *Datura stramonium* and *Phyllanthus urinaria* widely used in Homeopathy are available abundantly in the study area while *Rauwolfia serpentina* and *Saraca asoca* are scarce and in the verge of extinction. The population of *Andrographis paniculata*, *Ranunculus scleratus*, *Embelia ribes*, *Operculina turpethum* and *Pterocarpus marsupium* were less as compared to other species and found to be under threat due to their wide use by the local populace for their primary healthcare.

Table 1: Some common Ethnomedicinal plants of Odisha used in the preparation of Homoeopathic medicines.

Botanical name, Accession No., Family name & Local name	Ethnomedicinal Uses	Homoeopathic medicines & Disease (s)
<i>Acalypha indica</i> L. (KS - 261) EUPHORBIACEAE Indramaricha (O, S, M).	One piece of clean white cloth soaked with the juice of the young part (about 10 cm long) of plant is used for the cleaning of the tongue of the infants against sore tongue and to remove the viscid phlegm.	Acalypha I. - Cough, diarrhoea, flatulence, haemoptysis. [6]
<i>Achyranthes aspera</i> L. (KS - 296) AMARANTHACEAE Apamaranga (O), Laljiri (K), Chipchirit (S), Silir kadn(M), Garadimi (J).	Paste of roots (5 g) is recommended before breakfast for seven days against obesity caused due to diabetes. The root is chewed and the saliva is held for 5-10 minutes in the mouth against toothache.	Achyranthes A. - Acute diarrhoea, boils, carbuncles, ulcers, renal dropsy, bladder stone. [6]

<i>Aegle marmelos</i> (L.) Corr. (KS - 381) RUTACEAE Bela (O, S, B), Sinjo (S), Lohagasi (K), Dyraruha (Ma), Saijang (M).	Tender leaf juice (10 ml) mixed with 2-3 drops of honey is given twice daily (evening and morning) on empty stomach to reduce blood sugar within 3-4 weeks. Leaf juice (10 ml) mixed with black pepper powder (1g) is taken daily after lunch for 5 days against dyspepsia.	Aegle M. - Acute & chronic diarrhoea and dysentery, dropsy, fever, bleeding piles. [6]
<i>Allium cepa</i> L. (KS - 103) LILIACEAE Piaja (O, S, Ho, M, K).	The bulb is sliced and rubbed on the skin twice in a day for six months to cure white spots including leucoderma.	Allium C. - Allergic rhinitis, hay fever. [6,9,10]
<i>Allium sativum</i> L. (KS - 188) LILIACEAE Rasuna (O, S, M, K).	Five cloves of garlic and a small amount of crushed coriander seeds is boiled in two cups of water, filtered, cooled, pinch of turmeric is added and given twice a day to increase lactation.	Allium S. - Bronchitis, dyspepsia, arthritis, hypertension, diseases of heart. [6]
<i>Aloe vera</i> (L.) Burm.f. (KS - 256) LILIACEAE Ghee-kuanri (O, J, M), Gheekumar (S).	The juice of the leaves is applied on the head against head reeling. About 10 g leaf pulp mixed with a little common salt is given as preventive of miscarriage, once weekly, until delivery.	Aloe - Haemorrhoids, diarrhoea, headache, incontinence [6,9,10]
<i>Alstonia scholaris</i> (L.) R.Br. (KS - 242) APOCYNACEAE Chhanchana (O), Kanumung (K), Chatnia (S).	Latex (3 - 5 ml) of the trunk, collected early in the morning is given orally to 2-3-month-old babies to cure general stomach troubles.	Alstonia S. - Malaria, anaemia, diarrhoea, dysentery. [6]
<i>Amorphophalus campanulatus</i> (Roxb.) Dec. (KS - 110) ARACEAE Olua (O), Ol-kacha (B).	Fermented juice of petiole used to cure diarrhoea. The corm and the shoot are cooked and eaten against post-partum complications.	Amorphophalus C. - Bronchitis, asthma, piles, splenomegaly. [14]
<i>Andrographis paniculata</i> Burm.f.)Wall. (KS - 248) ACANTHACEAE Bhuinimba, Chireita (O), Kalmeg (K, S), Kiryat (J).	10 ml of the saturated infusion of the whole plant is given twice a day for 5 days against fever. Decoction (15 ml) of leaf is given twice a day for three days against flatulence and liver ailments.	Andrographis P. - Infantile liver disorder, jaundice, dyspepsia, prolonged fever, worm infestation. [6]
<i>Artemisia nilagirica</i> (C.B.Cl.) Pampan. (KS - 310) (<i>Artemisia vulgaris</i> var. <i>nilagirica</i> C.B.Cl.) ASTERACEAE Dayana (O).	The leaf powder (5 g) along with curd (50 ml) is given against worm infestation in children.	Artemisia - Epileptic conditions, convulsive diseases of childhood, violent uterine contractions. [6]
<i>Asparagus racemosus</i> Willd. (KS - 174) LILIACEAE Chhatuari (O, J), Huring Atkir (K), Kedar nari (S), Gaichira (M).	Tuberous root powder (5 g) mixed with 5 drops of honey is given to the patient once in a day for one month to restore potency. A decoction of root prepared with milk is given to delivered mother to increase breast milk.	Asparagus R. - Safe delivery, threatened abortion, dysenteric- atonic dyspepsia. [6]
<i>Avena sativa</i> L. (KS - 249) POACEAE Oata (O), Jai (Ho, M).	The seed paste (10 g) is taken with sugar candy (10 g) and water (200 ml) early in the morning to cure spermatorrhoea. Seed juice (10 ml) is taken twice a day for 30 days in palpitation of the heart.	Avena S. - Nervous exhaustion, insomnia, acute coryza. [6,9,10]
<i>Azadirachta indica</i> A.Juss. (KS - 290) MELIACEAE Nima, Limba (O, S, B, M), Nimba (Sao, Kondh).	Seven tender leaves of the plant along with 7 'Tulsi' (<i>Ocimum sanctum</i>) leaves is prescribed daily to the person suffering from diabetes.	Azadirachta I. - Malarial fever, skin diseases, anorexia & dropsy. [6]
<i>Bacopa monnieri</i> (L.) Pennell (KS - 376) SCROPHULARIACEAE Brahmi (O), Panikundi (O, S, K).	Leaf juice (15 ml) along with 5 ml of honey given once a day (on empty stomach) for 30 days for epilepsy.	Brahmi - Impaired memory, whooping cough. [6]
<i>Blumea lacera</i> (Burm.f.) DC. (KS - 146) ASTERACEAE Pokasungha(O).	Leaf paste is prepared with cold water and given once in a week against bed-wetting. Leaf paste along with a pinch of common salt is applied externally to cure eczema on head locally known as 'Bada gha'.	Blumea - Cough, fever, haemorrhage, hoarseness. [6]
<i>Boerhaavia diffusa</i> L. (KS - 231) NYCTAGINACEAE Puruni(O), Kenchua (K), Choic arak (Sao).	The decoction (10 ml) of the whole plant with 4-5 drops of honey is given to cure dysuria during pregnancy. The patient is also advised to eat the leaves and tender branch tips as vegetables.	Boerhaavia D. - Dropsy & nephrotic syndrome, jaundice, gastroenteritis, heart diseases. [6]
<i>Calotropis gigantea</i> (L.) R.Br. ex Ait. (KS - 239) ASCLEPIADACEAE Arakha (O), Akaona(S), Pak (Sao), Akond (Bh).	A piece of white cloth soaked in latex is burnt and the ash thus obtained is mixed with mustard oil and applied externally to cure scabies. Flower paste is applied over the acne and pimples for the cure.	Calotropis G. - Intermittent fever, skin ailments, chronic rheumatism, diseases of spleen & liver, elephantiasis. [6]
<i>Cannabis sativa</i> L. (KS -154) CANNABINACEAE Bhang, Ganjei(O), Jia (S).	Leaf paste prepared with rice water given against dysentery. Inflorescence paste applied externally against eczema.	Cannabis S. - Fatigue, amenorrhoea, frightful dreams, pericarditis [6]
<i>Capsicum annum</i> L. (KS - 345) SOLANACEAE Lanka (O), Surkh Mirch (M).	Green fruits paste (20 g) mixed with mustard oil (10 ml) applied externally on the affected joints to curb rheumatic pains.	Capsicum - Heartburn, obesity, wound tend to suppurate, mayalgia. [6,9,10]
<i>Carica papaya</i> L. (KS -191) CARICACEAE Amruta-bhanda(O), Jhoda (K).	Root paste is applied locally to cure the piles. Ripe fruit is made into a paste and applied on the affected part of the face before one hour of bath to remove black spots.	Carica P. - Dyspepsia, constipation, diarrhoea, conjunctivitis, enlarged liver and spleen, carbuncles. [6]
<i>Centella asiatica</i> (L.) Urban (<i>Hydrocotyl asiatica</i> L.) (KS-315) APIACEAE Thalkudi (O), Thalkuri (J), Thalkuni (K); Dua-sag (S).	Seven fresh leaves are taken every morning for three months to cure chronic hyperacidity.	Hydrocotyl A. - Jaundice, skin disorders, aphthous stomatitis, weakness of memory, elephantiasis, leucorrhoea [6]
<i>Cinnamomum verum</i> Presl. (KS - 182) LAURACEAE Dalchini (O, S).	Paste of cinnamon powder prepared with a few drops of fresh lime juice is applied to remove pimples and to restore normal skin colour on the face. The stem powder	Cinnamon - Post-partum haemorrhage, nose bleed, flatulency, diarrhoea. [6]

	is also given to check vomiting.	
<i>Clerodendrum viscosum</i> Vent. (<i>C. infortunatum</i> auct. non L.) KS - 107) VERBENACEAE Kunti, Bhuasuni (O, S), Barni (S), Chamgar (Ho).	Root paste (5 g) mixed with 7 black peppers is eaten thrice daily for 3 days against nervous disorder.	Clerodendron I. - Gastric trouble, fever with enlargement of liver & spleen. [6]
<i>Coccinia grandis</i> (L.) Voigt. [<i>Cephalandra indica</i> (Wt. & Arn.) Naud.] (KS - 333) CUCURBITACEAE Kunduri (O), Bano kundri (K).	Leaf juice (1 ml) mixed with ginger juice (1 ml) is dropped into the nose twice daily for 5 days against sinusitis. Decoction of the twig of plant is given once daily for seven days against diabetes.	Cephalandra I. - Diabetes mellitus & <i>D. insipidus</i> , skin affections, dysentery, glandular enlargement. [6]
<i>Cocculus hirsutus</i> (L.) Diels (KS -171) MENISPERMACEAE Dahadahia (O, S), Dadaya (M), Kadalnani (Ma), Kamane-mara-dari (Kondh).	Young plants (before flowering) are ground and the paste (10 g) is given to those suffering from stomach-ache.	Cocculus - Vertigo, nausea, sleeplessness, travel sickness, paralysis of facial nerve. [6,9,10]
<i>Cucurbita pepo</i> L. (KS -293) CUCURBITACEAE Makhan, Kakharu (O), Karkaru (K).	Fruit pulp is applied externally to reduce the pain of burnt out skin.	Cucurbita - Nausea, vomiting of pregnancy, sea sickness, tape-worm infestation in children. [6]
<i>Cynodon dactylon</i> (L.) Pers. (KS - 281) POACEAE Duba, Dubaghasa (O), Dhobi ghas (K,S).	About 10 ml of the juice of the leaves with little sugar given to children to check vomiting. The root juice (10 ml) is taken early in the morning on empty stomach for 30 days against excessive bleeding during menstrual cycle and also after abortion.	Cynodon D. - Dysentery, haemorrhage, cuts & wounds, rheumatism dropsy, diarrhoea. [6]
<i>Datura stramonium</i> L. (KS -288) SOLANACEAE Dudura (O), Koda dudura (S).	The pounded leaf paste is applied on rheumatic joint to relieve of the pains. 2-3 drops of warm leaf juice mixed with castor oil is dropped into the ear against earache.	Stramonium - Cramps, stammering, high fever in children, violent muscle spasm, convulsion. [6,9,10]
<i>Desmodium gangeticum</i> (L.). DC. (KS - 169) FABACEAE Salaparni (O), Tandri bedijanetet (S).	Root (2-3 g) of this plant boiled in goat's milk (50 ml) is given to the mother for 7 days to increase the breast milk. The leaf juice (5 ml) is given thrice daily for 2 days against infantile diarrhoea.	Desmodium G.- Typhoid, intermittent fever, head ache, dropsy, rheumatic pain, meningitis. [6]
<i>Drosera burmannii</i> Vahl (KS - 236) DROSERACEAE Mukhjali (O, S).	5 ml of juice from the aerial part of the plant is given cold with running nose. Leaf paste mixed with a pinch of common salt is applied for treating reddish rashes in children.	Drosera - Whooping cough, tubercular glands, laryngeal phthisis, hoarse voice, asthma. [6,9,10]
<i>Embelia ribes</i> Burm.f. (KS - 295) MYRSINACEAE Baibiranga, Biranga (O, M, K)	Fruit powder (5-10 g) mixed with 3 black pepper (<i>Piper nigrum</i>) seeds in hot water is given against diabetes.	Embelia R. - Worm infestation, diarrhoea, dyspepsia and flatulence owing to worms in children-[6]
<i>Equisetum diffusum</i> D.Don (KS - 233) EQUISETACEAE Ashwa puchha (O).	Stem juice (10 ml) mixed with 5 drops of honey is given against painful urination as well as scanty urination. The patient is also advised to take the stem as vegetable.	Equisetum - Enuresis & dysuria, bed wetting in children, night mares, urinary-incontinence (childhood). [6,9,10]
<i>Ficus benghalensis</i> L. (KS - 104) MORACEAE Bara (O), Bare (M,S), Bai (K), Bandang (Kondh).	Decoction of bark is used as mouth-wash or gargle to cure throat infection and pyorrhoea. An infusion of the bark (10 g) mixed with 5 g of old jaggery is an effective and specific medicine for diabetes.	Ficus B. - Dysentery, uterine bleeding, spermatorrhoea, haematuria, jaundice. [6]
<i>Ficus religiosa</i> L. (KS - 254) MORACEAE Ostha(O), Pippala(Kondh), Tepe-hesa(K), Hesak(S).	Unripe fruits are boiled and made into a paste (10 g) with pinch of rock salt and jeera (<i>Cuminum cyminum</i>) powder. This is given once daily for at least 15 days to cure excessive urination and its sugar content.	Ficus R. - Any type of haemorrhage, bleeding piles, leucorrhoea, metrorrhagia, asthma, dental diseases, fractures. [6]
<i>Glycosmis pentaphylla</i> (Retz.) DC. (KS - 179) RUTACEAE Chauladhua koli (O), Rasgundi (Kondh), Ganji (M).	Root powder (5 g) is given with jaggery (10 g) twice a day for ten days against intermittent fevers of unknown origin.	Glycosmis P. - Biliary colic, flatulence, diarrhoea. [6]
<i>Gossypium arboreum</i> L. (<i>G. herbaceum</i> Mast.) (KS - 259) MALVACEAE Kapa, Karpaso (O, K, Bh, M, S).	Root decoction (20 ml) is taken for easy delivery.	Gossypium - Nausea, anorexia, disturbed uterine function & pregnancy. [6]
<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Schult. (KS -185) ASCLEPIADACEAE Gudamari, Mendha-singi (O), Gudmari (M).	Seven fresh leaves are prescribed daily in the morning for 15 days to reduce sugar content in blood.	Gymnema S. - Diabetes mellitus, cough, gastric derangement [6]
<i>Hedyotis herbacea</i> L. [<i>Oldenlandia herbacea</i> (L.)Roxb.] (KS - 228) RUBIACEAE Sana-gharapodia (O, S).	Decoction (10 ml) of the plant mixed with 5 drops of honey is given once in a day for one month against long standing fever with gastric irritability.	Oldenlandia H. - Low form fever, gastric troubles, jaundice, nervous depression [6]
<i>Holarrhena pubescens</i> Wall. ex G.Don. [<i>H. antidysenterica</i> Wall. ex A.DC.] (KS - 255) APOCYNACEAE Koruan (O), Hat (K,S), Kanailiba(M), Kure(Kondh).	Leaf paste is applied to the breast of the nursing mothers to increase lactation. Bark juice (10 ml) is taken twice a day for 5 days against chronic dysentery.	Holarrhena A. - Fever, dysentery (both acute & chronic). [6]
<i>Hygrophila auriculata</i> (Schum.) Heine (<i>Hygrophila spinosa</i> T. Anders.) (KS - 354) ACANTHACEAE Koilikhia, Koilikanta (O, S, M).	The plant's ash (5 g) is given with cow milk (100 ml) for 30 days to dissolve the stone of the urinary bladder. Leaf juice (5ml) along with honey (5 drops) is given at evening for 15 days against diabetes.	Hygrophylla S. - Malaria, skin diseases, safe delivery, bladder stone, insomnia, impotency, dropsy, rheumatism. [6]
<i>Jatropha curcas</i> L. (KS -219) EUPHORBIACEAE Baigaba (O), Kula jara	The latex is applied in several scalp skin diseases. Stem sap is applied to arrest gum bleeding. The stem twig also	Jatropha - Cholera, diarrhoea, measles, cramp in muscles, hiccough.

(K), Bhernda (S), Totkabindi (M).	used as tooth-brush.	[6]
<i>Justicia adhatoda</i> L. (KS - 175) ACANTHACEAE Basanga (O), Dhoda basang (S, M).	Leaf juice is prescribed as nasal drop to check nose bleeding. Leaf decoction is taken with honey (10 ml) twice daily against severe cough & cold.	Justicia A. - Common cold, cough, bronchial asthma. [6]
<i>Leucas aspera</i> (Willd.) Link. (KS - 139) LAMIACEAE Gaisa (O, S), Cupping-gachha (K), Goma ara (M).	Leaf-paste mixed with mustard oil is applied on the affected parts of the body against chronic skin eruptions including sty. The leaves (10 g) is fried in mustard oil and taken daily against gastric trouble.	Leucas A. - Scorpion and poisonous insect bite, chronic malaria, jaundice, enlargement of liver & spleen. [6]
<i>Linum usitatissimum</i> L. (KS -391) LINACEAE Alasi, Phesi (O, Bath), Unchi(K).	An equal part of the seed oil of this plant and lime water mixed together is used for removing blemishes from the face.	Linum - Asthma, hives, diseases of intestinal tract, urticaria, hay-fever. [6]
<i>Luffa acutangala</i> (L.) Roxb. (<i>Luffa amara</i> Roxb.) (KS - 316) CUCURBITACEAE Janhi (O), Paror jhanga (S).	Leaf juice (10 ml) mixed with 10 ml of honey is taken twice a day for 3 days to cure bronchitis.	Luffa A. - Chronic malarial fever, gall stone, colic, dropsy, acute and chronic nasal catarrh, enlarged liver and spleen. [6]
<i>Lycopodium cernuum</i> L. <i>Palhinhaea cernua</i> (L.) Franco (KS - 245) LYCOPODIACEAE Koki Pada (O).	Decoction (20 ml) of the whole plant mixed with turmeric powder (5 g) is given once in a day for 5 days to treat urinary tract infection in female. Stem paste (10 g) along with 5 g powder of black pepper (<i>Piper nigrum</i>) is given against rheumatism.	Lycopodium - Urinary or digestive disturbances, cutting & burning pains, chilliness, bloating & flatulence, hair loss, sexual dreams, fatigue, sciatica, cystitis. [6,9,10]
<i>Medicago sativa</i> L. (KS - 260) FABACEAE Alfa alfa (O), Lasun ghas (K).	Decoction of leaves (10 ml) along with 5 g of jaggery is given twice in a day for one month to the mother of a new born baby to restore broken health after delivery.	Medicago S. -Insomnia, nervousness, deficient lactation, neurasthenia. [6]
<i>Melia azedarach</i> L. (KS -378) MELIACEAE Mahanimba(O), Bokombaha(S).	A paste is prepared with the leaf and equal amount of roots of 'muturi' (<i>Smilax ovalifolia</i>) mixed with a few drops of latex of 'arakha' (<i>Calotropis gigantea</i>) and applied on affected part once daily till cure to get relief from sprain and swelling.	Melia A. - Malarial fever, skin diseases, anorexia & dropsy. [6]
<i>Melilotus indica</i> (L.) All. (KS -289) FABACEAE Ban methi (O), Huring upu (S).	Seed paste (2 g) mixed with 5 drops of lemon juice is given once in a day for 3 days against bowel complaints in children.	Melilotus I. - Infantile spasms, epilepsy, dreams and emissions, congestions and haemorrhages. [6]
<i>Mentha piperita</i> L. emend. Huds. (KS - 215) LAMIACEAE Peppermint (O, M).	The leaf paste (10 g) is taken after every main meal for 5 days against gastric troubles.	Mentha P. - Useful in gastrodynia, flatulent cold, infantile colic, voice husky, dry cough. [6]
<i>Mucuna pruriens</i> (L.) DC. (<i>Dolichos pruriens</i> L.) (KS -247) FABACEAE Baidanka (O), Atkir (S), Etki (K), Ilika (M).	Seeds are ground and made into rounded balls of 10 g each. 2 balls given daily twice a day after meal for 15 days against parkinsonism. One ball (100 g) of leaf is fed daily for 15 days to increase lactation in cow and buffalo.	Dolichos P. - A general intense itching without eruption, exalted nervous sensibility, senile pruritus, haemorrhoidal diathesis. [6]
<i>Nicotiana tabacum</i> L. (KS -241) SOLANACEAE Dhuan-patra, Dokata (O), Sukul (K), Tamakhu (O, S).	Leaf leachate is applied on skin of cattle against ectoparasite. Decoction of the dried leaf powder is applied on scalp to kill lice and dandruff.	Tabacum - Gastralgia, enteralgia, acute nausea, giddiness, vomiting, paleness, travel sickness. [6,9,10]
<i>Nyctanthes arbor-tristis</i> L. (KS - 161) OLEACEAE Shingarahara (O), Chamgur(M), Dokkedi (Kondh), Charisira (Bh), Krishnavetti (Sao), Saparon(S), Kokra(K).	10 ml of decoction of the leaves is taken with dried ginger powder (2 g) twice a day for 3 days against malarial fever. Seed powder (2 g) mixed with 10 ml of coconut oil is applied over scalp infections for the early cure.	Nyctanthes A. - Fever, rheumatism, sciatica, constipation. [6]
<i>Ocimum canum</i> Sims (KS - 238) LAMIACEAE Ghoda tulasi (O, Ma), Bharbari (S), Hundi punga (K).	The seeds (25-50) are soaked in water overnight and filtered in a fresh cotton cloth. This water is dropped in the eyes 3-4 times a day for 2 days against conjunctivitis.	Ocimum C. - Malaria, Migraine, dysentery, epistaxis, renal calculi. [6]
<i>Ocimum gratissimum</i> L. (KS - 275) LAMIACEAE Gaya tulsi (O), Acchakuon (M).	The leaf juice (2-3 drops) is dropped in the ear to cure ear ache.	Ocimum G. - Diseases of teeth & gum, neuralgia, seminal weakness, rheumatism. [6]
<i>Ocimum sanctum</i> L. (KS - 285) LAMIACEAE Tulasi (O).	Decoction of roots or leaves or both is given daily at evening for one month during excessive urination caused due to diabetes.	Ocimum S. - Fever, cough, common cold, headache, bronchitis, asthma. [6]
<i>Operculina turpethum</i> (L.)Silva-Manso (KS -211) CONVOLVULACEAE Tiudi (O), Dudholomo (M).	Powdered roots (10 g) mixed with the juice of unripe fruits (20 g) of 'Aenla' (<i>Phyllanthus emblica</i>) is given twice a day for 10 days to check weight-loss caused by diabetes.	Operculina - Plague, fevers, diarrhoea, haemorrhoids. [6]
<i>Phyllanthus emblica</i> L. (<i>Embllica officinalis</i> Gaertn.) (KS - 183) EUPHORBIACEAE Aenla (O, B, J), Aura (K), Merel (S), Amla (M).	Fruit-rind is sun-dried, powdered and mixed with sesame oil (1:2) to be used as a hair growth promoter and as a hair stainer.	Embllica O. - Dyspepsia, cough, diarrhoea, constipation, dysentery, jaundice. [6]
<i>Phyllanthus urinaria</i> L. (KS - 129) EUPHORBIACEAE Bhuin aenla, Bari-aenla (O, M, J), Badar, Shapni (S).	The fresh root (2 g) is ground in rice water and taken daily in the morning for 15 days against jaundice. The infusion (5 ml) of the young shoot is given thrice a day for 2 days against dysentery.	Phyllanthus U. - Urinary disorders, respiratory disorders, leucorrhoea. [14]
<i>Piper nigrum</i> L. (KS -109) PIPERACEAE Golamaricha (O, S), Marich (K).	7 black pepper's paste is taken with warm water to relieve of the pain during menstrual cycle.	Piper N. - Heavy head ache, nose itches, nose bleed, lips dry and cracked, difficult micturition. [6]

<i>Pistia stratiotes</i> L. var. <i>cuneata</i> Engl. (KS - 105) ARACEAE Borajhanji, Panitamara (O).	The juice (10 ml) of young plants mixed with equal amount of green coconut milk is given to reduce sugar content in blood.	Pistia S. - Fever, chronic skin diseases, cough, asthma, dysentery, burn, diseases of urinary tract. [14]
<i>Plectranthus barbatus</i> Andr. (<i>Coleus forskohlii</i> sensu Briq.) (KS - 216) LAMIACEAE Rukuna hatapochha (O), Pukhom kur (K), Bana-juani (M).	Leaf decoction (10 ml) with a 'black pepper' (<i>Piper nigrum</i>) and 5 g jaggey is given once in a day for seven days early in the morning to cure abdominal pain.	Coleus A - Urinary trouble, gonorrhoea, cystitis. [6]
<i>Psoralea corylifolia</i> L. (KS - 237) FABACEAE Bakuchi (O, S, M).	The root paste is applied on the teeth to treat caries. Seed paste is applied externally to cure leucoderma and psoriasis.	Psoralea C. - Leprosy, leucoderma, psoriasis. [14]
<i>Pterocarpus marsupium</i> Roxb. (KS -184) FABACEAE Piyasala, Beeja(O), Hid(K), Murga(S), Bia(Kharw)	Crushed young leaves or tender shoots (20 g) are soaked in hot water (50 ml) and the leachate is given to children against tape-worm and thread-worm infestation.	Pterocarpus M. - Diabetes mellitus, toothache, leucoderma, dysentery. [6]
<i>Ranunculus scleratus</i> L. (KS -229) RANUNCULACEAE Pani dhania (M).	Leaf paste is applied over the affected part of the face to cure pimples.	Ranunculus S. - Coryza, corns, burning tongue, blisters [6]
<i>Rauvolfia serpentina</i> (L.). Benth. ex Kurz (KS - 262) APOCYNACEAE Patal garuda (O, S), Chhedabag (K), Huring (M).	Fresh root-juice (5 ml) of the plant is given against epilepsy and neurological disorder. Bark juice is given (5 ml, twice a day for 2 days) against stomach ache.	Rauvolfia R. - Hypertension, neuropsychiatric disorder, insomnia. [6]
<i>Ricinus communis</i> L. (KS - 222) EUPHORBIACEAE Eranda, Jada, Gaba (O), Bada (Sao, Kondh).	The oil is introduced into the rectum of the babies against constipation which show a quick action.	Bofareira - Gastro-intestinal derangement, lactation in nursing mother, vomiting, vertigo.[6]
<i>Saraca asoca</i> (Roxb.) de Wilde. (KS - 230) CAESALPINIACEAE Asoka(O), Husangid-ba, Usangid-ba (K).	Decoction of the bark (30 ml) along with 5g of old jaggery is given with 50 ml cow-milk in the morning for one month to cure menstrual disorders. Flowers and young fruits are made into a paste and applied over the body to improve the texture of the skin.	Janosia A. - Menstrual troubles (amenorrhoea & leucorrhoea), various uterine disorders, dyspepsia, dysentery, piles. [6]
<i>Semecarpus anacardium</i> L.f. (KS - 186) ANACARDIACEAE Bhalia (O, Kondh), Soso (S), Bhelwa (Kharw).	Kernel oil is applied externally to cure foot sores.	Anacardium - Vertigo, neurasthenics, syphilis, diminution of senses, frequent sneezing, eczema. [6,9,10]
<i>Solanum nigrum</i> L. (KS - 194) SOLANACEAE Nunununia (O, M).	Slightly warm leaf juice is dropped into the ear against earache.	Solanum N. - Chronic intestinal taxaemia, meningitis, violent convulsion, acute coryza, profuse discharge from right nostril.[6]
<i>Solanum virginianum</i> L. [<i>S. xanthocarpum</i> Schrad & Wendl.] (KS - 226) SOLANACEAE Ankaranti (O), Sastraviji (K), Rangaini janum(S).	The juice of the root and honey in a proportion of 2:1 is administered orally to cure dysuria. Fruit decoction used for gargling against diseases of gums and teeth.	Solanum X. - Cold & coryza, cough & fever, asthma, bladder stone, broncho-pneumonia, dysuria. [6]
<i>Strychnos nux-vomica</i> L. (KS - 266) LOGANIACEAE Kochila(O), Kara(M).	Young stem juice (5 ml) is taken twice a day for 5 days against dysentery. Decoction of dried seed powder is applied on the scalp against dandruff and premature hair drop.	Nux vomica - Colds & influenza, insomnia and digestive complaints, headache, fatigue, cystitis, frequent urination, travel sickness, jaundice. [6,9,10]
<i>Syzygium cumini</i> (L.)Skeels (KS - 189) MYRTACEAE Jammu (O), Neredu (Sao).	The bark powder (10-15 g) is given 3 to 4 times with an interval of 3-4 hours to check dysentery as well as diarrhoea. Leaf ash is used as a tooth powder against tooth ache and also in any type of tooth infection.	Syzygium J. - Diabetes mellitus, dysentery, dyspepsia, emaciation & weakness, prickly heat. [6]
<i>Terminalia arjuna</i> (Roxb.ex DC.) Wt. & Arn. (KS - 224) COMBRETACEAE Arjuna, Akha-gachha (O), Kowa(K), Kahua(S).	Leaf juice is dropped into the ear against ear ache. Bark powder (10 g) is taken with 250 ml of milk twice daily against cardiac problems.	Terminalia A. - Chronic diarrhoea & dysentery, cardiac tonic, haemorrhages. [6]
<i>Terminalia bellirica</i> (Gaertn.) Roxb. (KS - 190) COMBRETACEAE Bahada(O), Lupurg(K), Lopong(S).	Fruit juice is taken with honey (each 10 ml) twice a day for 2 days to check diarrhoea. The fruit juice mixed with the sesame oil is applied regularly for 1-2 months to check greying of hair.	Terminalia B. - Piles, dropsy, dysentery, diarrhoea, dyspepsia. [6]
<i>Terminalia chebula</i> Retz. (KS - 191) COMBRETACEAE Harida (O), Rola(K&S), Kakra(Sao).	Fruit paste (10 g) is taken twice a day for 15 days against dyspepsia. Its dry fruits powder (10 g) along with equal amount of the fruit of 'Bahada' (<i>Terminalia bellirica</i>) and the fruit of 'Aenla' (<i>Phyllanthus emblica</i>) are soaked in 250 ml of water for 4-6 hrs and the water is drunk to get rid of chronic constipation.	Terminalia C. - Bleeding piles, constipation, chronic dysentery, chronic diarrhoea, diseases of gum. [6]
<i>Thuja orientalis</i> L. (KS - 227) CUPRESSACEAE Mayura pankha (O).	Leaf paste is applied against skin diseases like boils, scabies and eczema.	Thuja O. - Asthma in children, tissue degeneration and tumours, warts and fungoid growths, gastro-intestinal disorders, difficulty in passing urine (prostrate problem). [6,9,10]
<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thoms. (KS - 234) MENISPERMACEAE Guluchi-lata (O), Gursilai (Kondh),	Stem powder (10 g) of this plant and 2-3 g of 'black pepper' powder (<i>Piper nigrum</i>) are prescribed for 7 days to cure urinary tract infection.	Tinospora C. - Seminal debility, chronic malaria, intermittent fever, jaundice, sciatica, rheumatism. [6]

Gurach(M).		
<i>Tribulus terrestris</i> L. (KS -433) ZYGOPHYLLACEAE Gokhara (O), Gokhru (Bath).	Infusion (15 ml) of matured fruits is prescribed early in the morning in empty stomach to rectify the urinary troubles (diabetic nephropathy) and impotency.	Tribulus T. - Dysuria, seminal weakness, prostrates, impotence, calculous affections and sexual neurasthenia. [6]
<i>Trichosanthes dioica</i> Roxb. (KS – 511) CUCURBITACEAE Potala(O), Potal(Bh).	Juice of the leaves (5 ml) is given daily on empty stomach for 10 days against thread worm infection.	Trichosanthes D. - Chronic malarial fever, nausea & vomiting, kala-azar. [6]
<i>Tylophora indica</i> (Burm.f.) Merr. (KS – 499) ASCLEPIADACEAE Antamula (O), Kanga (Bh).	Leaf juice (20 ml) mixed with honey (5 ml) is given once in a day for 20 days to treat asthma.	Tylophora I. - Breathlessness with dry cough. [6]
<i>Wrightia tinctorial</i> (Roxb.) R.Br. (KS – 411) APOCYNACEAE Dudho-kerua, Pita-Korua (O); Set kuri (Ho), Khirna (K).	Bark or seed paste (5 g) is prescribed once in a day for 3 days or till cure in flatulence and bilious affections.	Dysentery (both acute & chronic) [6]
<i>Zingiber officinale</i> Rosc. (KS – 98) ZINGIBERACEAE Ada (O, S, K, M).	About 15 g of the rhizome is cooked with 20-25 g jaggery and given against anorexia and dyspepsia. A piece of ginger (5 g) is put in the mouth for some time and the juice is gradually swallowed against sore throat.	Zingiber O. - Dyspepsia, flatulent colic, cold & cough, asthma. [6,9,10]

Abbreviations: O – Odia, M – Munda, Kharw – Kharia, Bh – Bhuiyan, S – Santal, Sao – Saora, Kondh – Kondha, K -Kolha, J-Juang, Ma-Marandi, Bath -Bathudi; KS- Kunja Satapathy.

Table 2: Habit-wise distribution of medicinal plant species in the study area used in Homoeopathy.

Sl. No.	Habit	No. of Species	Distribution percentage
1	Herb	39	47
2	Shrub	9	11
3	Tree	22	26
4	Climber	13	16

Table 3: Distribution of medicinal plant species used in Homoeopathy under 10 top families.

Sl. No.	Family	No. of species
1	Fabaceae	06
2	Lamiaceae	06
3	Euphorbiaceae	05
4	Solanaceae	04
5	Apocynaceae	04
6	Cucurbitaceae	04
7	Liliaceae	03
8	Combretaceae	03
9	Asclepiadaceae	03
10	Acanthaceae	03

4. Discussion and Conclusion

According to several survey reports including the one resulting from workshop namely “Conservation Assessment and Management Prioritization (CAMP) for medicinal plants of Odisha organised by the UNDP - India joint venture National Programme on Promoting Conservation of medicinal plants and Traditional Knowledge for Enhancing Health and Livelihood Security held in Bhubaneswar during October 7-10, 2007, several plants including those mentioned in this article have been observed to have an alarmingly reducing population. Unfortunately, this disappearing trend has gone to such an extent that a few of them have already been enlisted as “Critically Endangered” (CR) or “Endangered” (EN) while some others are given the status of vulnerable (VN). Hence, care should be taken for their preservation and propagation.

In the backdrop of this realization, this article has been designed to acquaint the common people and researchers to correctly identify the medicinal plants. Vernacular names in local languages are also given for the benefit of the local people to facilitate correct identification. Some of these ethno-medicinal plants used in primary healthcare as described above have also taken place in Indian systems of

medicines such as ‘Ayurveda’, ‘Siddha’ and ‘Unani’ as well as in Homoeopathy as documented in this article. Needless to over-emphasise that there has been a tremendous pressure on these selected group of plants owing to the combined exploitation by the pharmaceutical industries of both indigenous and Homoeopathic system of medicines. This coupled with lack of adequate cultivation practices for their regeneration has resulted in a serious depletion of this much valued natural resources. Hence, it is the need of the hour to explore, identify and utilise these medicinal plants on one hand and, on the other, to help conserve the existing but threatened and endangered species.

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