

ETHNO BOTANICAL STUDY IN SOME VILLAGES OF GANJAM DISTRICT, ODISHA STATE

Mamata Mohapatra, P.G.Department of Botany and Biotechnology , Khallikote Autonomous College, Berhampur-760001, Ganjam, Odisha, India.

ABSTRACT

Ethno botanical study was carried out in some of the villages of Ganjam district of Odisha during 2018 to document the medicinal utility of plants. The present paper deals with traditional uses of 48 plant species belonging to 46 genera and 32 families along with correct botanical identification, local names, parts used and mode of administration in respect to different diseases. The documented ethno medicinal plants are mostly used to cure skin diseases, cough and cold, diarrhoea, jaundice, piles and urinary troubles.

Index Terms: Ethno-botanical study; medicinal plants , Odisha

I. INTRODUCTION

The state of Odisha has an area of 1,55,707 km² which stretches from north to south in about 800kms and from east to west 500kms. Odisha lies within 17.780 & 22.730 latitudes and 81.37E longitude. The state lies south of the Tropic of Cancer and thus experiences a tropical climate. There are many rivers flowing through the state such as Mahanadi, Brahmani, Baitarani, Indravati, Subarnarekha and Rushikulya etc. which make the state a vegetation rich with variety.

Geographically the state is divided into five major regions such as the coastal plains, the middle mountainous region, the central plateau, the western rolling uplands and the main flood regions. Recent survey about the natural vegetation showed that there are about 726 species belonging to 496 genera and 120 families found which is about one fourth of the total species (2900 sps) found in Odisha. The coastal region stretches from Subarnarekha river in the North to Rushikulya river in the South.

Early explorers in Odisha made Botanical collections and the village healers played crucial roles in the development of new drugs by the use of ethnobotany. In the middle of 20th century the use of ethnobotany declined slightly but it again caught momentum in the last decade. Various International Organisations and NGOs has given priority to Ethnobotany with an aim to increase in the standards of health care.

The tribal and rural people in Coastal Odisha use about 600-700 species for their medicinal requirement out of which approx. 200 species are in rampant use for commercial purposes. The natural vegetation in coastal Odisha and the plants degraded vigorously in the last half century due to rapid changes in life perception and socioeconomic values. Very few works have been reported on ethno-botanical uses of plant species found in coastal area [1, 2,3,4].

In the coastal districts most village areas still have local healers which use traditional medicines. These traditional medicines are totally based on practical observations and experiences and is transferred by individuals from generation to generation [5]. The climate of the coastal area is sub-tropical, hot and dry in summer, dry and cold in winter. Of the total population in the villages about 80% people get health services through the tribal medicines and their importance is realised recently by various organisations. Although several attempts have been made, in the past, to collect information on ethno-medicinal uses of plants of the state an attempt has been made to collect the ethno-medicinal information on wild plants available in South Orissa especially in Ganjam[3-16]. This is a part of the project undertaken to survey and evaluate the plants which are found in rural areas and are used as medicines in different areas of Ganjam.

II. STUDY AREA AND IT'S GEOGRAPHY

District : Ganjam

State : Odisha

Language : Oriya, Hindi and Telugu.

Current Time 8-11.30AM

Date: Monday, Tuesday and Wednesday , Nov 19,20 and 21,2018 (IST)

Elevation / Altitude: 29 meters. Above Sea level














(The Map of Ganjam, Odisha).







(ii) MATERIALS AND METHODS






For this purpose the traditional healers were identified and interviewed extensively during the study. In the study, questionnaire was used to collect information on the local name of the plants, parts used, methods of preparation of the medicine, and approximate doses¹⁸. Plant specimens were collected in the company of at least one traditional healer to make sure that the proper plant has been obtained. The collected plant specimens were processed, dried and herbarium specimens were prepared. The specimens were identified with the help of the local floras. The plants are enumerated as per their botanical name along with family, local name(s), and medicinal uses. The samples of recorded herbs, shrubs, and trees were identified with the help of previous literature and regional floras [8, 9, 10]. The plants specimens were processed using the standard herbarium techniques. The study provides information on 48 plant species under 46 genera and 32 families. Asteraceae and Zingiberaceae contributed maximum number of species. Of these, 7 species are monocotyledons and 41 are dicotyledons. The important disease/disease groups are asthma, bronchitis, skin ailments, diabetes, fever, eye problems, ear pain, obesity, constipation, liver problem, toothache, gonorrhoea, spermatorrhoea, leprosy, malaria, cardiac problem, and rheumatism. A maximum of 10 plant species were used against skin diseases, followed by







09 species each against cough and cold, 08 plant species were used for eye disorders, 06 plants as vermifuge, 05 plant species used for rheumatism and 04 species are used each for liver problems and dental pain [17,18,19,20].






Sl. No.	Botanical name, family and local name.	Picture of the plant.	Uses (parts used shown in bold letters).
1.	<i>Abrus precatorius</i> L. Fabaceae Local name:-Kaincha.		The seed coat is removed before using as medicine. The Leaf juice is mixed with the leaf juice of <i>Plumbago zeylanica</i> , applied on skin to cure leucoderma. The seeds ground with honey applied over wounds reduce septicemia.
2.	<i>Acalypha indica</i> L. Euphorbiaceae Local name:- Nakachana.		Drinking leaf juice cures skin diseases, when put in eyes cures cataract and relieves ear and dental pain when put in ears.
3.	<i>Achyranthes aspera</i> L. Amaranthaceae Local name:- Apamaranga.		The leaf juice applied on bee, snake and scorpion Bite and reduces pain and toxicity and reduces toothache. The leaf paste of this plant with leaf juice of <i>Leucas aspera</i> and honey are taken orally as a vermifuge. The leaf juice is applied to stop bleeding.
4.	<i>Acorus calamus</i> L. Araceae Local name:-Bacha.		Dried roots are used as medicine. During eclipse the root powder is mixed with equal amount of milk and consumed to increase intelligence. Children get their teeth early chewing the roots .
5.	<i>Aganosma caryophyllata</i> (Roxb. ex Sims) G. Don. Apocynaceae Local name:-Malati		The paste of flowers eliminates leprosy, the leaf/root juice with honey is put in the ear to relieve the ear pain. The root ground with buttermilk reduces the belly of women after delivery.






6.	<p><i>Aloe barbedensis</i> Mill. Liliaceae Local name:- Gheekuanri.</p>		<p>The leaf juice cures skin ailments, cough, asthma and increases strength and stamina.</p>
7.	<p><i>Anacycles pyrethrum</i>DC. Asteraceae Local name:- Akarakara.</p>		<p>Extracts of plant root increases libido and reduces Pain by causing numbness. It increases circulation and relives pain in arthritis.</p>
8.	<p><i>Andrographis paniculata</i>(Burm. f.) Acanthaceae Local name:- Bhuinnimba.</p>		<p>The whole plant is boiled and used as a vermifuge, cures sore throat and reduces inflammatory bowel disease.</p>
9.	<p><i>Argyreia nervosa</i>(Burm.f.) Boj. Convolvulaceae Local name:- Bruddhajaraka.</p>		<p>The leaf paste is applied on pimples to burst them; The root powder is effective for rheumatism. Root powder with cow's urine is taken to cure filaria.</p>
10.	<p><i>Artemesia vulgaris</i> auct.nonL Asteraceae Local name:- Dayana.</p>		<p>All parts of the plant are used as medicine, it is used as a diuretic, treatment of fever and the powder of the plant is mixed with oil for massaging to prevent body odor.</p>
11.	<p><i>Asparagus racemosus</i>.Willd. Liliaceae Local name:- Shatabari.</p>		<p>The leaves fried in cow ghee is taken orally reduces night blindness. The powder of <i>Asparagus</i> root taken with cold water eliminates disurea.</p>







12.	<p><i>Averrhoa carambola</i> L. Geraniaceae Local name:- Karamanga.</p>		<p>The leaf paste is used for rheumatism, the flower paste for coughs and the seeds against asthma, colic and jaundice. The fruit is used as a laxative.</p>
13.	<p><i>Bacopa monnieri</i> (L.) Penn. Scrophulariaceae Local name:- Brahmi.</p>		<p>All parts of the plant are used as medicine. The powder of the plant with five times rectified spirit is kept covered in a china clay jar for fifteen days, then it is strained and used as medicine to increase intelligence, acts as a blood purifier and reduces skin diseases.</p>
14.	<p><i>Boerhaavia diffusa</i> L. (Burm. f.) Wall. ex. Nees. Nyctaginaceae Local name:- Puruni.</p>		<p>Entire plant is used as medicine, used to treat edematous condition, acts as a diuretic, Anti-inflammatory and hepatoprotective agent.</p>
15.	<p><i>Bryophyllum calycinum</i> Salis. =<i>Kalanchoe pinnata</i> (Lam.) pers. Crassulaceae Local name:- Amarapoi.</p>		<p>The extracts of root and entire plant is used as medicine. The leaf juice is used to stop bleeding. The leaf juice is applied all over the body and then covered with a blanket to reduce fever.</p>
16.	<p><i>Caesalpinia bonduc</i> (L.) Roxb. Caesalpinaceae Local name:-Gila.</p>		<p>The fried leaves are applied on the testes to reduce swelling. The root powder relieves acne, fever, irritation, worm infestation and rheumatism. The seed juice is injected for relieving leprosy, loss of appetite, cough and heart diseases.</p>
17.	<p><i>Chromolaena odorata</i> (L.) King and Robins Asteraceae. Local name:- Pokasungha.</p>		<p>Leaf juice is used for lice of head and skin and put in the nose for curing malaria.</p>





18.	<p><i>Cissampelos pareira</i> L. var <i>hirsute</i> Menispermaceae. Local name:- Akanabindhi.</p>		<p>Leaf paste is used as medicine for leprosy, Irritation vomiting and for heart diseases. Entire leaf with a little bit of castor oil is put on pimples to burst it. Root paste is applied in vagina for easy delivery.</p>
19.	<p><i>Clitoria ternatea</i> L. Fabaceae.. Local name:- Aparajita.</p>		<p>The root extracts are injected to act as antipyretic, anti-inflammatory, analgesic, diuretic and antidiabetic.</p>
20.	<p><i>Coleus ambonicus</i> Lour. Lamiaceae. Local name:- Pashanavedi.</p>		<p>The leaf paste with rice water and sugar is a good medicine for urinary stones. It also reduces cough, fever and epilepsy.</p>
21.	<p><i>Costos speciosus</i> (Koenig) Sim. Zingiberaceae. Local name:- Gai gobara.</p>		<p>Rhizome juice with sugar is given for relieving headache and leprosy. Root and rhizome paste when ingested act as antioxidant, antidiabetic, hepatoprotective and with antimicrobial activities.</p>
22.	<p><i>Curcuma longa</i> L. Zingiberaceae. Local name:- Haldi.</p>		<p>Rhizome paste with sesame oil is applied for reducing skin infections. This is also applied to reduce excessive bleeding by leech infestation. This paste with water is applied on the eyes to relieve eye infections and when ingested acts as antihelmintic.</p>

23.	<p><i>Curcuma zedoaria</i>(<i>Christm.</i>) Zingiberaceae. Local name:- Gandhasunthi</p>		<p>The rhizome powder reduces asthma, piles, cough, pimples and urinary diseases.</p>
24.	<p><i>Dalbergia latifolia</i> <i>L.f.</i> Fabaceae. Local name:- sissoo.</p>		<p>The leaf juice mixed with honey is applied in the eye to eliminate all types of eye diseases. The bark is used to treat diarrhoea, indigestion, leprosy and acts as a vermifuge.</p>
25.	<p><i>Feronia limonia</i>(<i>L.</i>)<i>Sw.</i> Rutaceae. Local name:- Kaitha.</p>		<p>Leaf juice is ingested to cure vomiting, indigestion, diabetes and hiccups. Ripened fruits alleviate pain and give satisfaction.</p>
26.	<p><i>Gymnema sylvestris</i>(<i>Retz.</i>)<i>R.Br.Ex.</i> <i>Sch.</i> Asclepiadaceae. Local name:- Gudamari.</p>		<p>The extracts of the plant together with camphor, lime and cardamom is used for diabetes.</p>
27.	<p><i>Hemidesmus indicus</i>(<i>L.</i>)<i>R.</i> <i>br. Var indicus.</i> Asclepiadaceae. Local name:- Ananta mula.</p>		<p>The root powder is mixed with butter and applied on the skin for measles and smallpox. The decoction of root powder is used as a blood cleanser.</p>
28.	<p><i>Justicia adhatoda</i> <i>L.</i> Acanthaceae. Local name:- Basanga.</p>		<p>Liquid extract of leaf is used as expectorant and anti histaminic agent.</p>

29.	<p><i>Kaemferia galanga</i> L. Zingiberaceae. Local name:- Ramakedara.</p>		<p>The rhizome decoction is used as expectorant, and carminative. Tea made of leaves is used for sore throat, swellings, and rheumatism and eye infections.</p>
30.	<p><i>Mentha piperita</i> L. Lamiaceae. Local name:- pepermint plant.</p>		<p>The oil extracted from the plant is ingested for reducing stomach pain, bloating and increases bowel movement. It is applied on forehead to alleviate migraine headache.</p>
31.	<p><i>Morinda citrifolia</i> L. Rubiaceae. Local name:- Laxmana phala. Noni fruit plant.</p>		<p>The fruit strengthens the immune system. It is used by healers to treat the effects of ageing, arthritis, inflammation, tumours and for other infections.</p>
32.	<p><i>Ocimum americanum</i> L. Lamiaceae. Local name:- Landa babuli.</p>		<p>The pounded leaves are placed in the forehead to relieve catarrh and on the chest for respiratory problems. The whole plant is used in baths to treat rheumatism, renal and colic pain.</p>
33.	<p><i>Ocimum basilicum</i> L. Lamiaceae. Local name:- Durlava..</p>		<p>The dry roots and stems are used to cure worms, rheumatism, leprosy and dry cough.</p>

34.	<p><i>Operculina turpethum</i> (L. Convolvulaceae.) Local name:- Tihudi, Dudhaloma.</p>		<p>The root bark is used for the treatment of vitiligo, constipation, bronchitis and obesity. The root powder is used for the treatment of herpes and tuberculosis. The leaf juice is used for conjunctivitis.</p>
35.	<p><i>Oxalis corniculata</i> L. Oxalidaceae. Local name:- Amliti.</p>		<p>The water boiled leaf juice is a very good medicine for piles. The leaf juice with black salt is directly put in the eyes to relieve swellings in the eye and night blindness.</p>
36.	<p><i>Passiflora suberosa</i> L. Passifloraceae. Local name:- lata. Tamala</p>		<p>The leaf decoction is used externally to treat urticaria and itching. The root decoction is used to initiate menstruation and hysteria.</p>
37.	<p><i>Paederia foetida</i> L. Rubiaceae. Local name:- Prasaruni.</p>		<p>The leaf juice is cooked with brinjal is a medicine for rheumatism. The stem and leaves (1 KG) are crushed and boiled with eight liters of water. The concentrate (four liters) is then mixed with one liter of sesame oil to prepare the oil for massage for all types of rheumatism and joint pains.</p>
38.	<p><i>Peperomia pellucida</i> (L. Piperaceae.) Local name:- Ghusuri Pana.</p>		<p>The whole plant is ground and applied on fresh wounds to stop bleeding.</p>

39.	<p><i>Phyllanthus acidus</i> (L.) Skeel Euphorbiaceae. Local name:- Narakoli.</p>		<p>The roots are boiled in water and the vapor is inhaled to relieve cough and headache. The decoction of bark is used to treat bronchial catarrh. The fruit is used as a laxative.</p>
40.	<p><i>Phyllanthus emblica</i> L. Euphorbiaceae. Local name:- Amla.</p>		<p>The fruits are immersed in water for some days and this water put in eyes relieves eye pain and gives calmness. The fruit paste with turmeric powder applied in the scalp gives smooth shining hair and prevents graying of hair. The fruit juice with lemon juice is taken orally to cure blood dysentery.</p>
41.	<p><i>Piper longum</i>.L. Piperaceae. Local name:- Pippali.</p>		<p>The root powder is used for cough, rheumatism and worms. The fruit powder is used for loss of appetite, indigestion and cure of piles.</p>
42.	<p><i>Rauvolfia serpentina</i>(L.) Apocynaceae. Local name:- Sarpagandha.</p>		<p>The root powder is used for hypertension and is a good tranquilizer and sedative.</p>
43.	<p><i>Sensiviera cylindrical</i>Boj.Ho rt Agavaceae. Local name:- Muruga..</p>		<p>The root powder is given to treat all types of fever. The root paste with rice water is administered to prevent vomiting.</p>
44.	<p><i>Sida cordata</i>(<i>Burm</i>) <i>Borss</i> Malvaceae.. Local name:- Bajramuli.</p>		<p>The juice of the root is used to treat indigestion. The root paste is applied on boils and wounds as poultice to remove the pus and reduce infection. It is also used to treat gonorrhoea and other venereal diseases.</p>

45.	<p><i>Sithonanthus indica</i> (<i>Chionanthus indica</i>) L. Oleaceae. Local name:- Brahmajhati.</p>		<p>The root bark powder is used to cure fever, cough, asthma, hiccups, pimples and rheumatism.</p>
46.	<p><i>Solanum nigrum</i> L. Solanaceae. Local name:- Nunnunia.</p>		<p>The leaf paste is used to cure leprosy; the boiled, concentrated leaf juice is used to cure urinary disorders and liver enlargements.</p>
47.	<p><i>Uraria rufescens</i>(DC.)Sch. h. In. Feddle. Fabaceae. Local name:-Shalaparni.</p>		<p>The leaves are used to heal bone fractures; the ash of the whole plant is used as an ointment for burn injuries.</p>
48.	<p><i>Wedelia chinensis</i>(Osbeck)) Merr. Asteraceae. Local name:- Bhringaraj.</p>		<p>The whole plant paste is used for skin ailments and ear pain. This juice is mixed with gooseberry carbon and elephant tooth carbon is used to grow hair on baldskull and reduces greying of hair.</p>

RESULTS AND DISCUSSION

The data is presented in the form of botanical names of plants, family, local name, parts used for medicine, mode of preparation and administration by the people. Plants of medicinal value are threatened because of their rapid exploitation in the preparation of different medicine. A total of 48 medicinal plant species belonging to 32 families and 44 genera were documented. Zingiberaceae, Fabaceae and Asteraceae were the most dominant family (4 species each) followed by Lamiaceae and Euphorbiaceae(3 species), Asclepiadaceae, Piperaceae and Rubiaceae (2 species each) (Fig. 1).

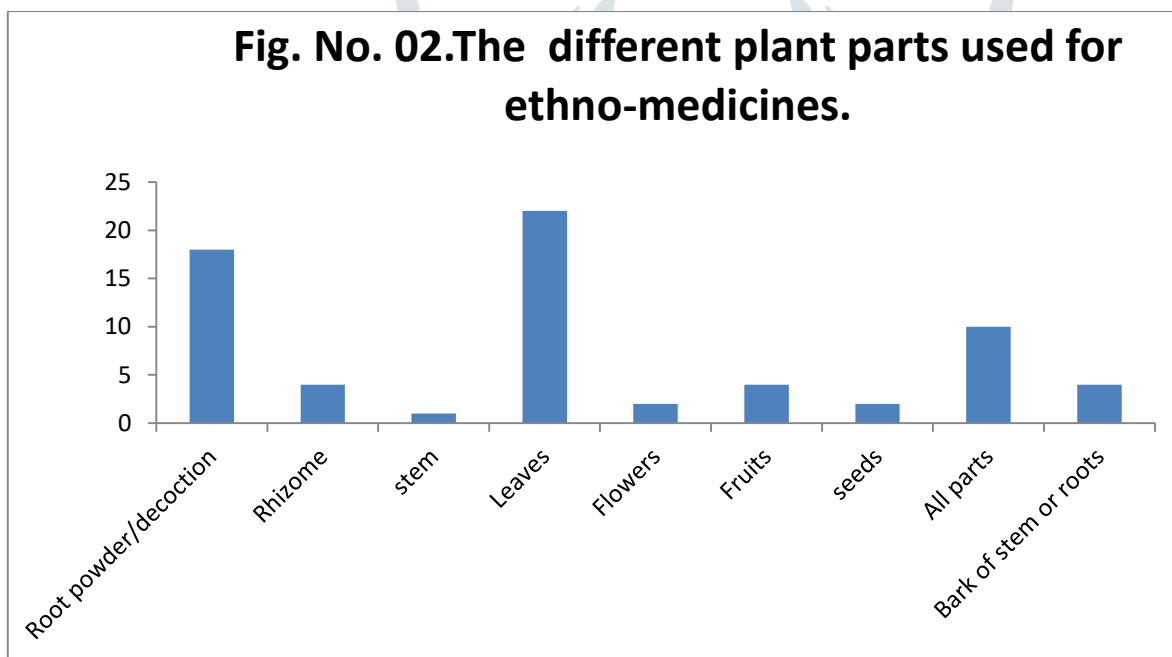
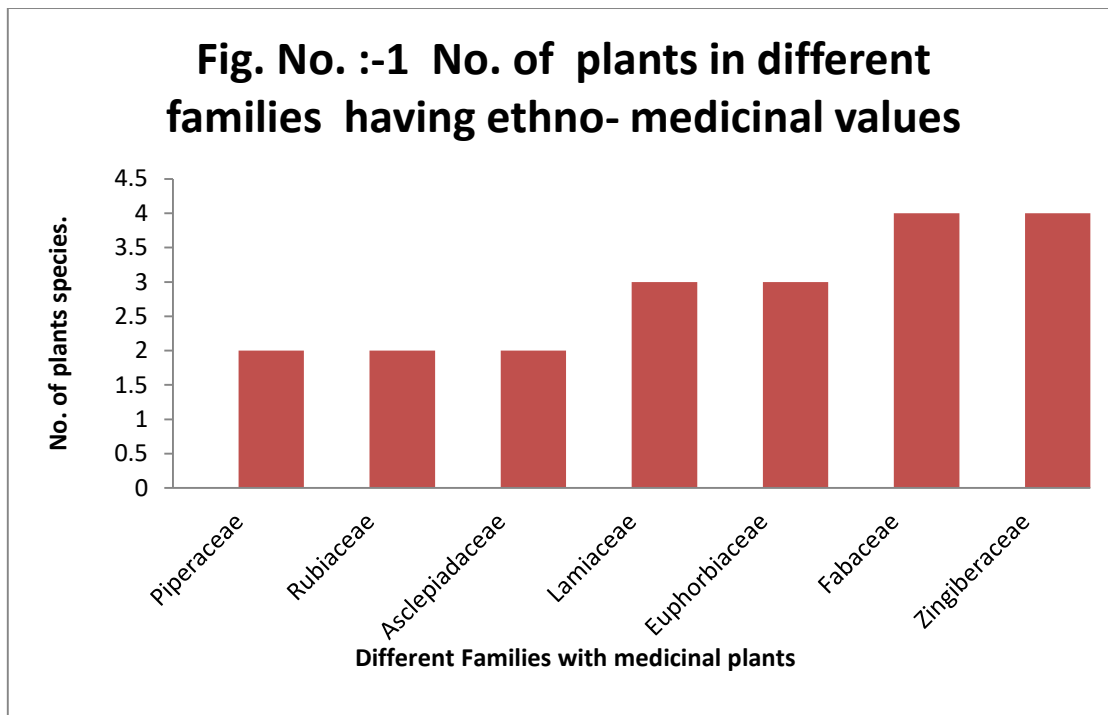


Table 01. Different ailments and treatments by various plants

Sl. No.	Ailments treated by plants/plant parts.	No. of plants used in this study.
1.	Antidiabetic	02.
2.	Asthma.	02.
3.	Bee sting and scorpion bite.	01.
4.	Bleeding.	03.
5.	Cough and cold.	09.
6.	Dental pain.	04.
7.	Diarrhoea.	02.
8.	Ear pain.	02.

9.	Eye disorder.	08.
10.	Fever.	05.
11.	Hair growth.	02.
12.	Indigestion.	02.
13.	Increase of intelligence.	02.
14.	Laxative	02.
15.	Liver problem.	04.
16.	Leprosy.	03.
17.	Obesity.	02.
18.	Rheumatism.	05.
19.	Skin ailments	10.
20.	Veneral diseases.	01.
21.	Vermifuge.	06.

CONCLUSION

The uses of aerial plant parts were higher than underground parts. Among the above ground aerial parts, the leaves were used in most of the cases (21 species) than other parts. Most of the species were collected from wild habitats and road side shrubs.

Ethno-medico-botany is a rapidly expanding science today and the real custodians of natural wealth and herbal medicines are the ethnic groups.

This plays a great role in exploiting the medicinal chemicals from the medicinal plants used by tribal/rural people. Almost all of the biologically active plant-derived compounds presently used worldwide have been discovered through research on tribal and ethno-medicinal uses. Plants are still the main source of medicine to majority of people worldwide, About 90% of the raw materials required for preparation of modern medicine come from wild sources and plants are still the main source of medicines to most of people worldwide living in remote areas. The ethno-botanical information serves as a base for new compounds with active principles for phyto-chemical, pharma-cognostical, pharmacological and clinical research. The use of Ethnobotany may also increase the job opportunity by 7% from 2014 to 2024.

As these medicinal plants and their efficacy is claimed to be high; detail pharmacological study is needed for better utilization of medicinal plant resources.

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