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Ethno Medicinal plants of Seshachalam Biosphere Reserve, Andhra Pradesh, India

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Abstract

The present investigation was carried out in Seshachalam Biosphere Reserve, Andhra Pradesh, India to document the use of medicinal plant species for various diseases and aliments. About 30 potential ethno medicinal plants belonging to 29 genera and 22 families were investigated. Altogether 30 types of ailments have been taken care of by using these plant species. Leaves were the most useful part as compared to other plant parts for the treatment of various ailments. Informants were randomly selected irrespective of their sex and age. All the plants need to be evaluated through phytochemical investigations to discover their potentiality as drugs.

Keywords

Ethno medicinal plants, Seshachalam Biosphere Reserve, Andhra Pradesh.

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INTRODUCTION

Plants have played a great role in the growth and development of human race. First and the most important necessity for human life is the oxygen which is provided by the plants. Besides this, for day to day life, plants have offered food, fodder, fuel wood, timber, dyes, latex, gums, fibres, shelter, fruits etc. Additionally, there are many plant species which have continuously been used by the natives for traditional medicines. Indian subcontinent is being inhabited by 500 tribal communities belonging to 27ethnic groups (Sajem and Gosai, 2006). Since time immemorial tribal people use plants to cure various ailments and diseases (Satyavathi *et al*, 2017). Applications of medicinal plants constitute one important way of maintaining good health. Traditional knowledge is a record of human achievement in comprehending the complexities of life and survival of human society. The information about medicinal properties of plants came traditionally through generation by word of mouth. About 85% of rural people in India depend on wild medicinal plants for the treatment of various ailments. Folklore and traditional knowledge is in the process of extinction due to disruption of forest covers and uprooting of tribal population due to industrialization. Ethno medicinal studies are often significant in revealing locally important plant species for discovering of crude drugs. Traditional healing systems play an important role in maintaining the physical and psychological wellbeing of the vast majority of tribal people in India. Today continued deforestation and environmental degradation in many areas of India depleting the medicinal plant resources. The information about medicinal plants is available in many Indian literatures (Nadakarani, 1954). *Charakasamhitha* and *Sursuthasamhitha* written by Charaka and Sursutha respectively have information regarding traditional medicinal plants and their therapeutic

values (Meera, 1958). Though, different workers have explored and documented the ethnobotanical information from different parts of Andhra Pradesh (Chandrababu *et a*l, 2010, Hemadri *et al* 1987a, 1987b, Muralidhar Rao and Pullaiah, 1989, Savitramma *et al* 2007, Jeevan Ram and Raju, 2011, Tanuja Sivaram *et al* 2018,). The main focus of the present study is to ascertain the detailed information on the use of plants and their therapeutic medicinal practices among tribals in SBR.

Topography of the study area

The Sheshachalam Biosphere Reserve (SBR) is located in Seshachalam hill range of Eastern Ghtas in Southern Andhra Pradesh. The hill ranges lie between 13º 38″ and 13º 55″ N latitudes and 79º 07″ and 79º 24″ E longitudes and spread over two districts viz., Chittor and Kadapa of southern Andhra Pradesh. The total geographical area of Seshachalam Biosphere Reserve is 4,755.997 Km^2 which spread 638 forest compartments. The area is demarcated into 3 zones viz., natural or core zone, manipulation or buffer zone and transition or restoration zone. Biogeographylly, the type of forest in SBR is tropical dry deciduous (Champion and Seth, 1968). The SBR comprises of seven peaks representing the seven hoods of Adishesha, thus attaining the name Seshachalam. The area exhibits variety of geographical rocks and soils. The soils are different types. The area as typical monsoonal climate with three distinct season's summer, rainy and winter, the variation in climate occurs from place to place. The forest of SBR possesses diverse plant species and endemic plants like *Pterocarpus santalinus*, *Indigofera barberi, Rhynchosia beddomei* (Fabaceae), *Syzygium alternifolium* (Myrtaceae), *Cycas beddomei* (Cycadaceae) *Shorea thumbaggaia* (Dipterocarpaceae), *Terminalia pallida* (Combretaceae), *Syzygium alternifolium* (Myrtaceae), *Boswelia ovalifoliata* (Burseraceae) and rare plants like *Dillenia indica, Melia dubia, Crotolaria globose, Hamiltonia suaveolens, Cassia surattensis* etc. are found in study area. Important rare plants in the biosphere reserve include; *Dillenia indica, Alphonsea sclerocarpa, Polyalthia korintii, Maerua oblogifolia, Niebuhria apetala, Casearia ellipitca, Shorea robusta, Hibiscus platanifolius, Kydia calycina, Melhonia incana, Aspidopterys indica, Pamburus missionis, Aglaia elaeagnoidea, Melia dubia, Soymida febrifuga, Crotolaria .quinquefolia, Eleiotis monophylla, Indigofera karnatakana, Ormocarpum cochinchinense, Pycnospora lutescens, Uraria picta, Cassia surattensis, Acacia eburna, Neptunia oleracea, Drosera indica, Memecylon lushingtonii, Corallocarpus epigaeus and Corbichonia decumbens. Hamiltonia suaveolens, Hydyotis avatifolia. Homalium zeylanicum, Butea monosperma, Rhynchosia_ heynei, Tephrosia sp.Critically endangered plants Rauvolfia serpentine and Litsea glutinosa* are the critically endangered species in the Biosphere Reserve area. Within the SBR is the temple of Lord Balaji and many streams and canals pass through SBR. Tribals are those who are confined to a particular geographical area (Krishnamurthy, 1958). The tribal inhabitants of the SBR are mainly consist of Sugalis, Yanadis and Irulas. They depend on wild medicinal plants for the treatment of diseases and aliments. The forest provides ample scope and socio-cultural activities of the tribes that live in adjacent areas of the SBR.

METHODOLOGY

The ethnobotanical data was collected through interviews, discussions and own observations (Jain, 1977, 1981). Many remote areas were visited to interact with the tribal people and gathered information during 2011-13. Actual information about the medicinal plants was collected in the field with the help of reliable tribes and local informants. In this way, total of 84 persons were contacted for present study. Several specimens of plants were collected either with flower or fruit or with both. Each plant or its individual parts have their own significance in traditional remedies. The information was compared with the published literature (Madhusudhana Rao, 1989). The collected specimens were identified with the help of Floras (Gamble JS and Fischer CEC, 1915-35, Ellis JL, 1987, Mastan *et al*, 2015, Venkatesh Ramila *et al* 2015, Nagi Reddy *et al* 2018, Pullaiah *et al*, 2018). The voucher specimens are deposited in Botany Herbarium, Dravidian University, Kuppam. The plant species are arranged alphabetically with their botanical names, followed by vernacular names, family and mode of administration.

RESULTS AND DISCUSSIONS

The investigation revealed the medicinal properties of 30 species belonging to 29 genera under 22 families. The dominant families of ethnobotanical interest are Asclepiadaceae (3 sps), Caesalpinaceae (2 sps), Solanaceae (2 sps), Sterculiaceae (2 sps), Apocynaceae (2 sps), Menispermaceae (2 sps), Liliaceae (2 sps) and remaining families contributed one species. Among all these plant species only one is a plant parasite. All these plant species are used by tribal people to treat 30 diseases which include skin infections, abdominal disorders, jaundice, deworming, wounds, mouth ulcer, fractures, bites,

fever, cold, cough, dandruff, pains, paralysis, sprains, diabetes, piles, leucorrhoea etc. Significant findings of this study are that most of the plants collected in SBR reserve forest are being reported for the first time. Majority of remedies were taken orally followed by external application. The remedies are prepared in the form of extract, decoction, paste, powder etc. It was observed that traditional knowledge is related to the age and sex of an individual. Generally old age people have much information about medicinal plants due to their personal experience and interaction with plants. Despite their high medicinal importance, the use of traditional medicinal plants is declining day by day which may be because of the availability of the fast relieving medicines in the market. Most of the reported preparations in the study area are drawn from single plant and rarely mixers. The results are presented in table.

Table

S.No	Botanical Name	Local Name	Family	Mode of use
1	*Abutilon indicum* (L.) Sweet	Adavibenda	Malvaceae	Root paste mixed with pepper and administered to control abdominal disorders
2	*Albizia thampsoni* Brandis	Velugu chintha	Mimosaceaee	Paste prepared from stem bark with honey used for skin infections
3	*Andrographis paniculata* (Burm.f.) Nees	Nelavemu	Acanthaceae	Decoction of leaves with lemon cure jaundice
4	*Anisomeles malabarica* (L.) Sims	Adavibeera	Lamiaceae	Leaf powder with heat water kills the worms in infants
5	*Aristolochia indica* L.	Nalleswara	Aristolochiaceae	Decoction of leaves used for indigestion
6	*Asparagus racemosus* Willd	Adaviteega	Liliaceae	Tubers used as appetizers in adults
7	*Boswellia ovalifoliata* Balakr and Henry	Konda sambrani	Burseraceae	Gums and resins with milk used for cough in children
8	*Cassia fistula* L	Rela	Caesalpinaceae	Leaf extract gives relief from vomitings
9	*Capparis zeylanica* L	Uchi	Capparaceae	Stem bark dissolved in water and used for ear cleaning
10	*Coculus hirsutus* (L.) Diers	Dusara teega	Menispermaceae	Decoction of leaves along with sugar control leucorrhoea
11	*Dendrophthoe falcate* (L.f.) Ett var. falcata	Badanika	Loranthaceae	Flower extract applied for small pox
12	*Desmodium pulchellum* (L.) Benth	Deyyapu mokka	Fabaceae	Root extract used for epilepsy
13	*Enicostemma axillare* (Lam.) A.Raynal	Reska	Gentiaceae	The plant extract used for septic wounds
14	*Gloriosa superb* L.	Naabhi	Liliaceae	Decoction of leaves used for dandruff
15	*Helictres isora* L.	Thada chettu	Sterculiaceae	Decoction of stem bark used in diabetes
16	*Hemidesmus indicus* (L.) R. Br	Palateega	Asclepiadaceae	Root paste with buttermilk gives relief from bronchitis
17	*Holoptelea integrifolia* (Roxb.) Planch	Peddamanu	Ulmaceae	Stem bark extract with pepper remove piles
18	*Jasminum trilobatum* L.	Adavimalle	Oleaceae	Leaf extract used for tooth pain
19	*Plumbago zeylanica* L.	Chitramulam	Plumbaginaceae	Decoction of leaves used in menstrual disorders
20	*Sarcostemma acidum* (Roxb.) Voigt	Palachettu	Asclepiadaceae	Plant extract gives relief from fever and body pains

21	*Shorea tumbuggaia* Roxb.	Tamba jalari	Dipterocarpaceae	Leaf extract with jiggery used for bone fractures
22	*Sida rhambifolia* L.	Attibala chettu	Malvaceae	Leaf extract applied for mouth ulcer
23	*Solanum surattense* Burm.f.	Mulaka	Solanaceae	Fruit extract used for partial paralysis
24	*Solanum trilobatum* L.	Uchi	Solanaceae	Decoction of leaves used for deworming in infants
25	*Sterculia urens* Roxb.	Konda cheniga	Sterculiaceae	Stem bark used for dysentery
26	*Terminalia chebula* Retz.	Karaka	Combretaceae	Bark extract used for snake and scorpion bites
27	*T. pallida* Brandis	Tella karaka	Combretaceae	Leaf extract gives relief from head ache
28	*Tinospora cordifolia* (Willd.) Hook.f.&Thamas.	Tippateega	Menispermaceae	Leaf extract used for fertility in humans
29	*Tylophora indica (*Burm.f.) Merr.	Podapachettu	Asclepiadaceae	Leaf with pepper gives relief from respiratory problems
30	*Wrightia tinctoria* R. Br	Palavareni	Apocynaceae	Leaf paste with castor oil used for hair falling

CONCLUSIONS

The popular use of herbal remedies among the tribal people in SBR reflects the revival of interest in traditional medicine. The scientific validation of these remedies may help in discovery of new drugs from plant species. The people of this study area possessing sound knowledge of herbal drugs. Our young generations are not much in favor of these practices because of non-availability of some important medicinal plants, unspecified doses and unknown side effects. Therefore, it is the need of the hour to conserve this indigenous and precious knowledge about the uses of medicinal plant remedies and also to pass on this to our present and future generations effectively. The medicinal plants continue to play an important role in the primary healthcare system of tribes.

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