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## Medicinal plants used for jaundice by the tribal people of nallamalais in Andhra Pradesh

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**Abstract**

The study has been carried out and record medicinal practices for treating jaundice in Nallamalais of Andhra Pradesh. A total of 40 species belonging to 25 families were documented used for the treatment of jaundice. Mainly leaves and whole plant were preferred part to prepare decoction, extraction, juice, powder etc. Most of the plant species are sources of different chemical constituents which further contribute in formulating drug for common use. Most primitive tribes Chenchus and Sugalis live in Nallamalais. These tribes have a rich traditional ethno-botanical knowledge of medicinal plants for curing various human ailments.

**Keywords:** jaundice; nallamalais; drug; ethno-botanical knowledge; chenchus; sugalis

**Introduction**

The relationship between man and plants is an age-old phenomenon. Man has been using plants for various purposes from pre-historic times. According to Marini and Bettolo (1980) traditional medicine provides health services to about 70%-80% of total world population. Over three quarters of the world population relies mainly on plants and plants extracts for health care. More than 30% of the entire plant species, at one time or the other is being used for medicinal purpose. Of a total of 2,50,000 higher plant species on earth, more than 80,000 are medicinal. India is one of the world's 12 mega biodiversity centres with the presence of over 45,000 plant species. Indian diversity agro-climatic, 10 vegetation zones, 25 biotic provinces and 426 biomes. However, 7000-7500 herbal origin has been used in traditional system of medicine such as Unani, Ayurveda, Siddha since ancient times. The forest in India is the principal repository of large number of medicinal and aromatic plants, which are largely collected as raw materials for the manufacture of drugs. The Rigveda (5000 BC) recorded 67 medicinal plants. Yajurveda 81 species, Atharvaveda 290 species while Charak Samhita, Sushrut Samhita described the preparation and uses of 1100 and 1270 species respectively. But in recent years due to large scale urbanization and cutting down of forests the very existence of the treasure of indigenous medicine and its related knowledge is threatened. If not exploited will vanish soon. This can be achieved and preserved by immediate approach and interaction by a dedicated team of workers/NGO's or by entrepreneurs interested in the field. Chopra *et al.* (1956) [3] provided a glossary for Indian medicinal plants. Jain (1966, 90) [28] has contributed a lot to ethnomedicobotany. Kirtikar and Basu (1975) [19] described Indian medicinal plants extensively in 4 volumes. Rajendran (2003) [3] studies 25 plant species are being used by the local tribal inhabitants for the treatment of various common ailments in Sikkim. Rajasekaran *et al.* (1996) [28] studies folk medicine of Kerala and highlighted the association and symbiotic relationship of the classical systems like Ayurveda and Siddha with those of the folk medicinal practices of Kerala. Kadamban *et al.* (2004) [17] reported 172 medicinal plant species of these some of them are used for treating jaundice in Pondicherry. Several studies have been made on the medicinal plant resources of Andhra Pradesh. Important works include Hemadri *et al.* (1980 & 1987) [9, 10]; Kapoor & Kapoor (1980); Thammanna & Rao (1990) [22]; Rama Rao & Henry (1996) [32]; Jadhav *et al.* (2001) [11]; Pullaiah & Murthy (2000) [26]; Pullaiah (2002) [7]; Jadhav and Reddy (2006) [12]; Bahadur *et al.* (2007) [2]; Prasad *et al.* (2007) [6]; Nagaraju & Rao (1990) studied the ethno medicine available for jaundice. Vedhavathy (2002) reported to preserve the traditional knowledge as an urgent need to trap the information whatever exists among the older generation in Chittoor district. Earlier studies on medicinal plants of Nallamalais are Vijaya kumar & Pullaiah (1998) have reported 50 medicinal plants used by the tribals of Prakasam district. Kumar & Pullaiah (1999) [20] studied ethno medicinal uses of some of plants of Mahaboobnagar district. Goud *et al.* (1999) [6] enumerated about 29 species with the knowledge of tribals of Kurnool district for treating fever and malaria. Kumar & Pullaiah (1999) [20]

gathered the information of 31 medicinal plant species collected from Chenchus and Sugalis curing different ailments. Goud *et al.* (2002)<sup>[7]</sup>; Pullaiah *et al.* (2003)<sup>[27]</sup>; Rajasekhar Reddy *et al.* (2006)<sup>[12]</sup>; Thulasi Rao *et al.* (2007)<sup>[35]</sup> and Jeevan Ram & Raju (2007) studied different aspects on medicinal plants encountered in Andhra Pradesh, Kurnool part of Nallamalais has been studied recently for ethno medicinal resources by Sudhakar Reddy *et al.* (2007)<sup>[37]</sup>; Padma Rao *et al.* (2007)<sup>[2]</sup> studied some ethno medicines used by Chenchus in the treatment of Jaundice from (NSTR), and Shali Saheb studied medicinal plant resources and conservation in Nallamalais, Andhra Pradesh (2008)<sup>[34]</sup>. Plant-based traditional medicine plays a key role in the development of novelties in drug discovery (Wright 2005)<sup>[40]</sup>. No comprehensive work is available in the study area, therefore, the objective of the present paper is to document the medicinal plants used for curing the jaundice and their used by the local people of the area.

Jaundice is a disorder which occurs when the bilirubin content in the blood is excessive due to haemolysis (Annalakshmi *et al.* 2012)<sup>[1]</sup>. It is a yellowish discoloration of the skin, sclera, eyeballs, nails and mucous membrane. It indicates a disorder in liver or gall bladder, occurs mostly in the newborn babies as they do have the immature liver which cannot regulate the amount of bilirubin like an adult (Gayton 2005 Jayachandra & Devi 2012)<sup>[15]</sup>. It is one of the most common liver diseases are some of the major causes of morbidity and mortality across the world. According to the oldest codified system of medicine from South India, the Siddha system of medicine illustrates jaundice as one of the pitha types of disease (Annalakshmi *et al.* 2012)<sup>[1]</sup>. However, in modern allopathic medicine there is no unique treatment for jaundice (Abbasi *et al.* 2009).

### Study Area

Nallamalais, one of the Centres of Plant Diversity (CPD) (WWF & IUCN, 1995) is located in the Central Eastern Ghats between Latitudes 15°20' - 16°30' N and Longitude 78°30' - 80°10' E in Andhra Pradesh, extended to an area of 7640 sq km. Nallamalais cover five districts, viz. Kurnool, Prakasam, Guntur, Mahaboobnagar and Nalgonda. The hills cluster near Gundlabrahmewaram, which is the nucleus of the Nallamalais appearing as plateau. The vegetation of the Nallamalais is broadly categorized into 3 types; moist deciduous, dry deciduous, scrub type. Most primitive tribes, chenchus and sugalis live in Nallamalais. From time immemorial the forests of Nallamalais have been inhabited by chenchus an aboriginal and oldest tribe of South India. An ecological meaning is attributed to the word "chenchus" by interpreting that a person who lives under chettu (tree) is a chenchu. They are experts in collection of honey, wild fruits and plant crude drugs. The sugalis are in fact, the single largest tribal group. Sugalis also known as lambadis and Banjara are largely found in the Nallamalais forest. They speak Lambadi language which has no script. Lanbadis live in exclusive settlements of their own called Tandas, usually away from the main village, maintaining their cultural and ethnic identity. These tribes in the study area have rich traditional botanical knowledge and still dependent on wild medicinal plant resources for curing their ailments.

### Methodology

Several field trips were organised during 2016-2018 to different forest localities of Nallamalais. The authors met the tribal people, information was obtained through a series of

interviews with traditional healers, who still practised their indigenous system of medicine. Based on the information given by tribals, voucher specimens were collected from the study site. The collected specimen were made into herbarium following Santapau (1995)<sup>[33]</sup> and Jain and Rao (1997). Each specimen is identified with the help of various floras (Gamble, Andhra Pradesh Flora, Ellis. Kurnool Flora) and specimens housed in Department of Botany, Osmania Degree & PG College, Kurnool. The identified plants were further studied for their medicinal values as per suggestions of Chopra *et al.* (1956)<sup>[3]</sup>, Jain (1991), Kirtikar and Basu (1975)<sup>[19]</sup>.

### Results and Discussion

The present study reveals that a total of 40 species belonging to 36 genera and 25 families were recorded which are used in the study area for curing jaundice. The higher number of species belongs to family Euphorbiaceae (4 species) followed by Asclepiadaceae, Combretaceae, Cucurbitaceae, Fabaceae (3 species) each, Acanthaceae, Apocynaceae, Caesalpinaceae, Rubiaceae (2 species) each and rest of the families represent 1 species each. (Table. 1). Plants part used by the local tribals to treated jaundice were mainly leaves, fruit, stem bark, whole plant, root seed, rhizome latex. Among plant parts leaves were the most frequently used parts (14 species) followed by fruit (6 species), stem bark (6 species), whole plant (5 species), root (3 species), seed, gum, latex, rhizome, tuber (1 species) each. Leaves, fruits, whole plant were the most important parts in herbal medicine as they contain high concentration of active chemical compounds. These are administered in the form of medicinal recipes such as extract, juice, powder, paste etc. Sometime other substances like milk, jaggery, turmeric powder are also employed for preparing medicinal recipes. The following enumeration of plants investigated are arranged as per botanical name, followed by the family, local names, habit, plant parts mode of preparation. Thus, this study of medicinal plants, could help to identify new or lesser known medicinal species and by interacting with tribals providing a clue for systematic pharmacognosy, therapeutic and clinical research. The tribals depend on the plants around them which made them acquire knowledge of medicinal properties of many plants by trial and error. Consequently they became the storehouse of knowledge of many useful as well as harmful plants accumulated and enriched through generations and passed on to one another without any written documents. It must be properly documented and preserved urgently because most of the tribals are being assimilated into modern societies and the treasure of knowledge of uses of plant resources is fast disappearing. It is not only essential to conserve such a wealth of information found among the tribals but also enumerate and record such details and diverse information, which constitute a modern system to meet the ever increasing requirement of mankind. The increased demand for these forest products lead to over exploitation, causing depletion of precious plant species. Though the forest dwellers are buy and large conservation oriented, the middlemen and traders are making them to resort to unsustainable and destructive harvesting. The ethno-medicinal plants, particularly threatened ones, should be cultivated in herbal gardens, agro forestry systems and home gardens to encourage their sustainable utilization and hence conservation. Tribals should be shown alternate methods of livelihood and they should be encouraged to cultivate the important medicinal plants. Efforts should also made by researchers and scientists to conserve and propagate.

**Table 1:** List of Medicinal plants used for curing Jaundice

Sl. No.	Botanical name	Family	Local name	Habit	Used parts Mode of preparation
1.	<i>Aloe vera</i> (L.) Burm.f.	Liliaceae <sup>18</sup>	Kalabanda	Perennial Herb	Leaf juice
2.	<i>Andrographis paniculata</i> (Burm.f.) Nees.	Acanthaceae <sup>1</sup>	Nelavemu	Erecet Herb	Whole plant decoction
3.	<i>Argemone mexicana</i> L.	Papavaraceae <sup>22</sup>	Errikusuma	Herb	Latex applied
4.	<i>Baliospermum solanifolium</i> (Burm.) Suresh	Euphorbiaceae <sup>15</sup>	Nelajeedi	Shrub	Root extract
5.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae <sup>21</sup>	Punar nava	Herb	Root powder
6.	<i>Boswellia serrata</i> Roxb.ex Colebr.	Burseraceae <sup>6</sup>	Andugu	Tree	Gum
7.	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae <sup>16</sup>	Moduga	Tree	Stem bark decoction
8.	<i>Cassia fistula</i> L.	Caesalpinaceae <sup>8</sup>	Rela	Tree	Fruit extract
9.	<i>C. occidentalis</i> L.	Caesalpinaceae <sup>8</sup>	Kasinta	Shrub	Leaf powder
10.	<i>Centella asiatica</i> (L.) Urban	Apiaceae <sup>3</sup>	Brahmi	Climber	Leaf powder decoction
11.	<i>Cheilocostus speciosus</i> (J.Koenig) C.D.Specht	Costaceae <sup>12</sup>	Chengalvakostu	Herb	Rhizome decoction
12.	<i>Citrus colocynthis</i> (L.) Scharder.	Cucurbitaceae <sup>13</sup>	Indravaruni	Climber	Fruit
13.	<i>Coccinia grandis</i> J. Voigt	Cucurbitaceae <sup>13</sup>	Donda	Climber	Fruit
14.	<i>Cochlospermum religiosum</i> (L.) Alston	Cochlospermaceae <sup>7</sup>	Kondagogu	Tree	Stem bark
15.	<i>Cordia dichotoma</i> G. Forst	Cordiaceae <sup>9</sup>	Bankanakkari	Tree	Leaf powder
16.	<i>Curculigo orcheioides</i> Gaertn.	Hypoxidaceae <sup>17</sup>	Nelatadi	Herb	Tuber extract
17.	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae <sup>11</sup>	Aakasavalli	Climber	Whole plant powder
18.	<i>Erythroxylum monogynum</i> Roxb.	Erythroxylaceae <sup>14</sup>	Devadari	Shrub	Leaf decoction
19.	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex.Sm.	Asclepiadeaceae <sup>5</sup>	Madunasi	Climber	Leaf extract
20.	<i>Holarrhena pubescens</i> Wall. Ex. G.Don.	Apocynaceae <sup>4</sup>	Palakodisa	Tree	Leaf extract
21.	<i>Hygrophila auriculata</i> (Schum.) Heine	Acanthaceae <sup>1</sup>	Kokilakshi	Herb	Leaf extract
22.	<i>Mimosa pudica</i> L.	Mimosaceae <sup>20</sup>	Attipatti	Herb	Leaf extract
23.	<i>Mitragyna parviflora</i> (Roxb.) Korth.	Rubiaceae <sup>23</sup>	Battaganapu	Tree	Stem bark
24.	<i>Oxystelma esculentum</i> (L.f.) Sm.	Asclepiadaceae <sup>5</sup>	Dudipala	Climber	Root powder
25.	<i>Pavetta tomentosa</i> L.	Rubiaceae <sup>23</sup>	Papidi	Tree	Leaf powder
26.	<i>Pergularia daemia</i> (Forssk.) Chiov.	Asclepiadaceae <sup>5</sup>	Dustaputeega	Climber	Leaf extract
27.	<i>Phyllanthus amarus</i> Schumach & Thonn.	Euphorbiaceae <sup>15</sup>	Nelausiri	Herb	Whole plant decoction
28.	<i>P. emblica</i> L.	Euphorbiaceae <sup>15</sup>	Usiri	Tree	Root bark decoction
29.	<i>Ricinus communis</i> L.	Euphorbiaceae <sup>15</sup>	Aamudam	Shrub	Leaf juice
30.	<i>Sesbania grandiflora</i> (L.) Pers.	Fabaceae <sup>16</sup>	Avisa	Tree	Stem bark powder
31.	<i>Solanum americanum</i> Mill.	Solanaceae <sup>24</sup>	Kamanchi	Herb	Fruit juice
32.	<i>Terminalia arjuna</i> Roxb. ex. DC.	Combretaceae <sup>10</sup>	Tellamaddi	Tree	Stem bark extract
33.	<i>T. bellirica</i> (Gaertn.) Roxb.	Combretaceae <sup>10</sup>	Tani	Tree	Fruit extract
34.	<i>T. chebula</i> Retz.	Combretaceae <sup>10</sup>	Karakaya	Tree	Fruit extract
35.	<i>Tephrosia villosa</i> (L.) Pers.	Fabaceae <sup>16</sup>	Nuguvempalli	Herb	Leaf powder
36.	<i>Tinospora cordifolia</i> (Willd.) Miers.	Menispermaceae <sup>19</sup>	Tippa teega	Climber	Stem bark decoction
37.	<i>Tribulus terrestris</i> L.	Zygophyllaceae <sup>25</sup>	Palleru	Herb	Whole plant decoction
38.	<i>Trichosanthes cucumerina</i> L.	Cucurbitaceae <sup>13</sup>	Chedupotla	Climber	Whole plant extract
39.	<i>Wrightia tinctoria</i> R.Br.	Apocynaceae <sup>4</sup>	Aakupala	Tree	Leaf powder decoction
40.	<i>Zaleya decandra</i> (L.) Burm.f.	Aizoaceae <sup>2</sup>	Galejeraku	Herb	Leaf extract

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