

## Research Article

# FIBRE YIELDING WILD PLANT SPECIES IN SOME TRIBAL MANDALS OF ANDHRA PRADESH STATE IN INDIA

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### Abstract

This study is an attempt to explore, identify, enumerate, assemble and document the traditional indigenous knowledge of fibre yielding wild plant species available and utilized by the ethnic people in seven tribal mandals of Parvathipuram Manyam and Srikakulam districts of Andhra Pradesh State in India. It reports 40 fibre yielding wild plant species belong to 33 genera of 20 families in which trees represent 37% (15) followed by shrubs 20 % (8) herbs 27% (11), climbers 5% (2) and lianes 2% (1). The availability of fiber is based on the nature of the plant species and the fibre is obtained from different plant parts i.e. stem, bark, leaves, stilt roots fruits and seeds. The study is useful by documenting the available fibre yielding wild plant species in some tribal areas and it suggests the same in every district of any state in any country for future purposes.

**Keywords:** Wild Fibre Plants, Ethnic Knowledge, Tribal areas , Plant parts.

### Introduction

The fibre yielding plants are the key resources in human civilization and are second only to food plants in utility and economy. Pandey & Gupta, (2003) gave a brief over view of major fiber yielding plants of India and their uses. There are plenty of renewable resources in plant kingdom for fibres '(Kolte et al. 2012)'. Fibre yielding plants, fibre products and their uses are also given by Sahu et al.( 2013), Singh et al. (2014) & Bharadwaj et al. (2014).

Most of the Angiospermic plants possess the fibre in their different parts. The cultivated fibre yielding plant species are limited and sometimes not profitable. There are a number of native fibre yielding wild plant species used by the locals are available in every area which becomes alternatives needs documentation. Hence, the purpose of this study is to explore, identify, enumerate, assemble and document the fibre yielding wild plant species used, making fibre products and their use by tribal people in seven tribal Mandals of Srikakulam and Parvathipuram Manyam districts in Andhra Pradesh state.

### Materials and Methods

**Study area:** The study is conducted in seven tribal Revenue Mandals i.e. Seethampeta , Kothuru, Bamini, Hiramandalam, Pathapatnam, Meliaputti and Mandasa) of Integrated Tribal Development Agency (ITDA), Seethampeta, purview in Srikakulam and Parvathipuram Manyam Districts which is located in the extreme North-Eastern districts of Andhra Pradesh state situated within the geographical co-ordinates of 180° 5'-190° 12' of northern latitude and 83°32'-84°47' of eastern longitude (Fig.1). The study area possesses considerable percentage of

tribal population (1, 66,118- 6.15%) in hill and forest areas and the dominant tribal groups are Savara, Jatapu, and Kapu Savara.

**Collection of data:** The present study is undertaken which is mainly based on field visits, observations and interactions. Village elders, farmers, marketing personnel and womenfolk are also involved in the discussion to obtain firsthand information. Interviews with different tribal groups of people are held during the study period regarding the plants, parts, extraction, processing, skills, products, use, marketing potential and their economic returns.

**Results**

A total of 40 fibre yielding wild plant species of 33 genera belonging to 20 families have been identified and documented in Table-1 that comprises their Botanical name, family, local name, habit, parts used and fibre products. It has been observed that the family Malvaceae records highest in number of genera (11) and species (11), followed by Agavaceae, Arecaceae, Caesalpiniaceae, Tiliaceae of each 3 species and Bixaceae, Poaceae Sterculiaceae of 2 from each family and

Fibres are being extracted from various parts of the plant such as stem bark, leaf, fruit, and stilt roots based on the plant species. The present study revealed the fibres are extracted from seven plant parts are utilised for fibre extraction viz., bark, stem, leaf, leaf sheath, leaf petiole, stilt root and fruit of the 40 plants studied.

It has been observed that fibre extraction is high from stem bark 15 (37%), species viz., A squamosa, B purpurea, B. racemosa, B. vahlii, B. orellana, C. arborea, E. suberosa, F. hispida, G. tiliifolia, H. isora, L.coromandelica, P. xylocarpum and T. orientalis; followed by stems of 9 plant species (22%) viz., A.squamosa A. indicum, C.capsularis, H. sabdariffa H. vitifolius, I. frutescens. S. acuta, T.Acuminata and U. lobata; leaves of 6 (15%), species viz., A. americana, A. sativus, P. sylvestris, S. roxburghiana, S. zeylanica var. laurentii and T. angustifolia; fruits of 3 (7%) species viz., B. ceiba, C. religiosum and T. lampas; leaf sheaths of 2 species (5%), viz., S. urens, and M. paradisiaca ; leaf petiole of B. flabellifer L(3%) leaf and fruit of T. angustifolia L(3%); stilt roots of P. tectorius (3%) is used to extract fibres among the 40 plant species studied,.

The family Malvaceae records highest in number of genera (11) and species (11), followed by Agavaceae, Arecaceae, Caesalpiniaceae, Tiliaceae each of 3 species and Bixaceae, Poaceae, Sterculiaceae of 2 from each family and Annonaceae, Anacardiaceae, Apocynaceae, Bromeliaceae, Lecythidaceae, Moraceae, Musaceae Pandanaceae, Papilionaceae, Typhaceae and Ulmaceae of one from each family. .

Out of the total identified 40 species, trees represent (15) 37% followed by herbs ( 11) 27%shrubs (8) 20%, palms(3) 8%, climbers (2) 5% and liane 1(3%). The fibres are obtained from various parts of plants like stem, bark, leaves, roots, fruits, seeds etc.

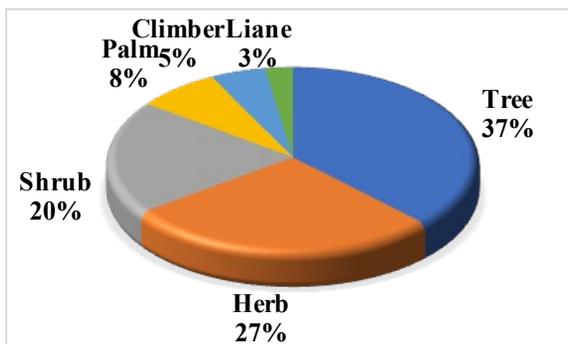
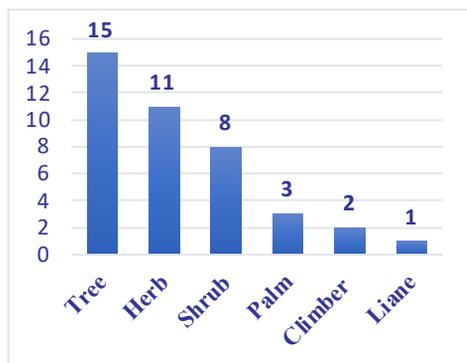


Fig. Number of the plant species based on habit Fig. Percentage of the plant species based on habit

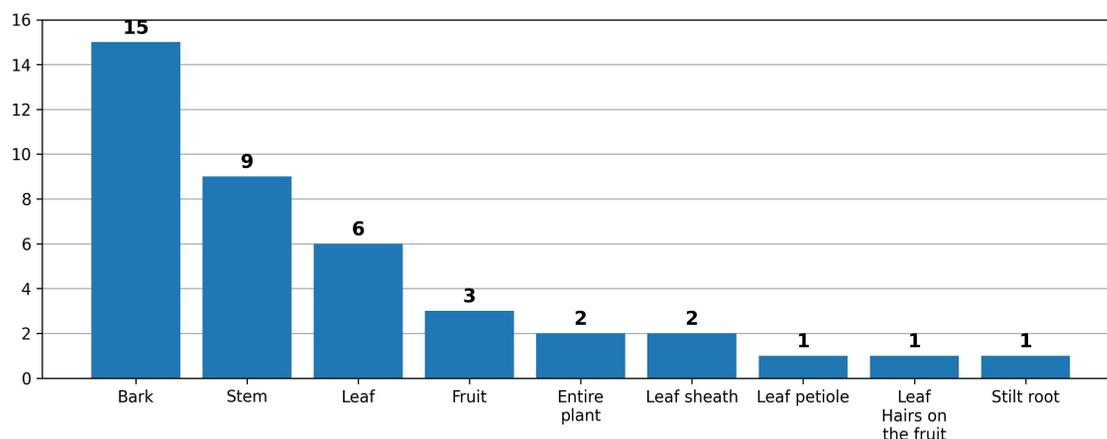


Fig. Number of plant species based on the parts used

### Discussion

The present study focuses the fibre yielding wild plant species frequently used by the tribals in their habitat which plays a key role in the day-to-day life of ethnic people from seven Revenue Mandals of Srikakulam and Parvathipuram Manyam districts. It reveals that many genera and species of the family Malvaceae in particular and the order Malvales in general have more number of fibre yielding wild plants in this area. It is useful not only in preserving the ethnic knowledge of fibre yielding wild plant species keeping in view that it should be transferred for future generations. The study suggests that to safe guard the tribals reliance, sustain ecosystems, and to minimize the plastic usage. modern technologies like developing plant fibre reinforced composite materials that can utilize the traditional knowledge of fibre yielding wild plant species are of great relevance. Future scope includes the traditional and indigenous knowledge, extraction, skills, processes, products and usage in every area should be documented.

This account can provide valuable information on the vast untapped wealth of wild fibre plant resources will become an alternative for traditional cultivated fiber plants to give income by reducing the expenditure and local employment in tribal areas of any region. The study helps for a detailed study on wild fibre plants for the region-wise in any Nation.

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**Authors Contributions:** The following are Authors contributions

1. Design of the study, Data collection, Interpretation and Manuscript Drafting: T.M.A. Niveditha.
2. Conception, Revising the Manuscript and Data Evaluation: P. Balarama Swamy Yadav.

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**Data Availability:** The data is available with corresponding author, and he will provide the same on a reasonable request.

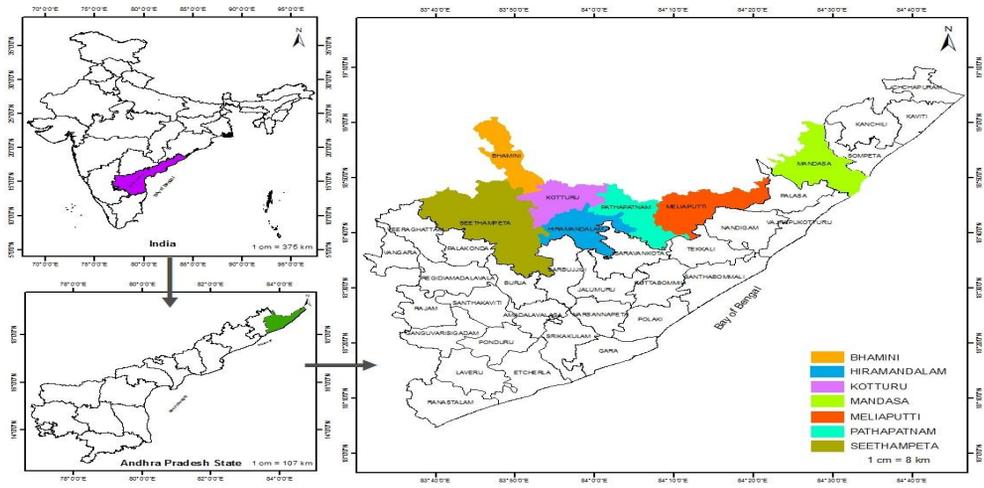


Fig.1. Study site (Seven Revenue Mandals)



Plate 1. ( Figs.1-20) Fibre yielding wild plant species studied

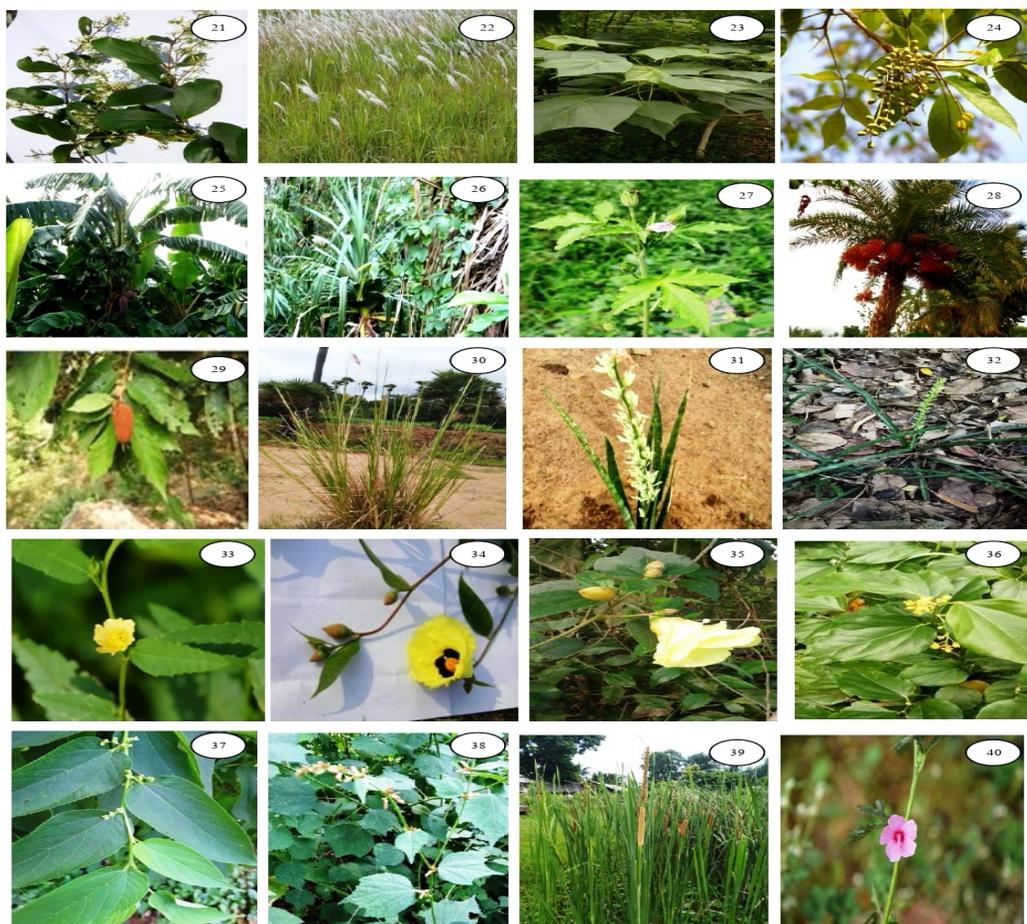


Plate 1. Contd. (Figs.21-40) Fibre yielding wild plant species studied

**TABLE 1. Fibre yielding wild plant species**

S.no	Botanical name	Local name	Family	Habit	Part(s) used
1	<i>Abutilon indicum</i> (L.B1:F30) Sweet	Thuthura Benda	Malvaceae	Shrub	Stem
2	<i>Agave americana</i> L.	Kittanara	Agavaceae	Shrub	Leaf
3	<i>Ananas sativus</i> Schult. & Schult.f.	Anasa pandu	Bromiliaceae	Herb	Leaf
4	<i>Annona squamosa</i> L.	Sithaphalam	Annonaceae	Shrub	Stem
5	<i>Bauhinia purpurea</i> L.	Bodanta	Caesalpinaceae	Tree	Bark
6	<i>Bauhinia racemose</i> L.	Ari	Caesalpinaceae	Tree	Bark
7	<i>Bauhinia vahlii</i> Wt.&Arn.	Addaku	Caesalpinaceae	Liane	Bark
8	<i>Bixa orellana</i> L.	Jabaru kaya	Bixaceae	Shrub	Bark
9	<i>Bombax ceiba</i> L.	Mundla buruga	Malvaceae	Tree	Fruit

10	Borassus flabellifer L.	Thati chettu	Arecaceae	Palm	Leaf petiole
11	Careya arborea Roxb.	Kumbhi	Lecythidaceae	Tree	Bark
12	Caryota urens L.	Jeeluga	Arecaceae	Palm	Leaf sheath
13	Cochlospermum religiosum (L.) Alston	Konda gogu	Bixaceae	Tree	Fruit
14	Corchorus capsularis L.	Perantalikura	Tiliaceae	Herb	Stem
15	Erythrina suberosa Roxb.	Mulla moduga	Papilionaceae	Tree	Bark
16	Ficus hispida L.f.	Kukka bodda	Moraceae	Tree	Bark
17	Grewia tiliifolia Vahl.	Thada chettu	Tiliaceae	Tree	Bark
18	Helicteres isora L.	Chamali nara	Sterculiaceae	Tree	Bark
19	Hibiscus sabdariffa L.	Janapanara	Malvaceae	Shrub	Stem
20	Hibiscus vitifolius L.	Nallabenda	Malvaceae	Herb	Stem
21	Ichnocarpus frutescens (L.) W.T.Aito	Karra tivva	Apocynaceae	Climber	Stem
22	Imperata cylindrica (L.) P.Beauv.	Darba gaddi	Poaceae	Herb	Leaf
23	Kydia calycina Roxb.	Konda patti	Malvaceae	Tree	Bark
24	Lannea coromandelica (Houtt.) Merr.	Gumpina	Anacardiaceae	Tree	Bark
25	Musa paradisiaca L.	Arati	Musaceae	Tree	Leaf sheath
26	Pandanus tectorius Parkinson ex Du Ro	Mogali	Pandanaceae	Herb	Stilt root
27	Pavonia zeylanica (L) Cav	Chittbenda	Malvaceae	Herb	Entire plant
28	Phoenix sylvestris (L.) Roxb.	Eetha chettu	Arecaceae	Palm	Leaf
29	Pterospermum xylocarpum (Garten.) Oken	Loluku	Sterculiaceae	Tree	Bark
30	Saccharum spontaneum L.	Rellagaddi	Poaceae	shrub	Entire plant
31	Sansevieria roxburghiana Schult. & Schult.f.	Chamakada nara	Agavaceae	Herb	Leaf
32	Sansevieria zeylanica var. laurentii (De Wild.) L.H.Bailey	Phirangi mokka	Agavaceae	Herb	Leaf
33	Sida acuta Bumf.	Gayapaku	Malvaceae	Herb	Stem
34	Thespesia lampas (Cav.) Dalzell	Adavi pratti	Malvaceae	Shrub	Fruit

35	<i>Thespesia populnea</i> (L) Sol. ex Correa	Gangaravi	Malvaceae	Tree	Bark
36	<i>Tiliacora acuminata</i> Miers.	Bandi mushidi	Tiliaceae	Climber	Stem
37	<i>Trema orientalis</i> (L.) Blume	Boggu chettu	Ulmaceae	Tree	Bark
38	<i>Triumfetta rhomboidea</i> Jacq.	Banka tuttara	<u>Malvaceae</u>	Herb	Bark
39	<i>Typha angustifolia</i> L.	Janumu	Typhaceae	Herb	Leaf/ Hairs on the fruit
40	<i>Urena lobata</i> L.	Nalla benda	Malvaceae	Shrub	Stem

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