



## Some Traditional Fibre-Yielding Plants Used for Rope Preparation in Nirmal District, Telangana

Velmala Madhu

Department of Botany, Government Degree College, Echoda, Telangana State- 504307

### ABSTRACT

Field surveys were conducted from July 2023 to August 2025 in the Nirmal district of Telangana state, India. Detailed information was recorded on 28 angiosperms belonging to 16 families regarding their use in the preparation of rope. This paper reports that woody plants, such as *Alangium salvifolium* and *Helicteres isora*, are used in the production of wickerwork. Our survey reports the detailed information classification ropes, there are three types: (i) Superior *Abelmoschus manihot*, *Crotalaria juncea*, *Cyamopsis tetragonoloba*, *Hibiscus subdariffa*, and *Vigna unguiculata*. (ii) Mediocre *Calotropis procera*, *Desmostachya bipinnata*, *Saccharum bengalense*, and *Ricinus communis*. (iii) Inferior *Phoenix sylvestris*.

**Keywords:** Fibre, Rope, Nirmal district, Telangana state.

### Introduction

Fibres are one of the most critical raw materials used in the preparation of ropes. Since ancient times, natural fibres such as jute, coir, hemp, and cotton have been twisted and braided to make strong ropes for daily use. The process of rope-making involves twisting or braiding fibres together so that they gain higher tensile strength and flexibility. Depending on the type of fibre used, ropes can be lightweight, water-resistant, or extremely strong, making them useful in various applications, including agriculture, construction, fishing, transportation, and many household purposes. Thus, the choice and preparation of fibres play a crucial role in determining the quality and application of ropes—some Fibre-Yielding plants used in the Preparation of Rope in Banaskantha district, North Gujarat. H.M.Ant. (2004). Swamy, N.S.N.S. (2008) reported 366 Ethnomedicinal plants used by tribes in the Adilabad district, as part of a UGC Minor research project under the plan. Brief review on plant fibres composites: Extraction, chemical treatment and fibre orientation. Materials Today, Aravinth *et al* (2022). In the present work, an attempt is made to present some interesting fibre-yielding plants used for the preparation of rope in Nirmal district, Telangana state, India.

### Study Area

The Nirmal district is situated at a latitude of 19.096413° N and a longitude of 78.342972° E, north of the



East Godavari district and south of the Adilabad district, and the Utnoor division, on the south by Jagithyal and Nizamabad districts, and on the west by the Nanded district of Maharashtra State. The most important river that drains the divisions is the river Godavari, which is the largest river in peninsular India. The Kadam Vagu is a tributary of the Godavari; besides these, the Swarna Vagu and the Sudda Vagu, which drain the division. The average annual normal rainfall of the Nirmal district is 1107.2 mm, and the average number of rainy days in the year is 55 - 63 days. The forest of this district falls under the tropical dry deciduous and tropical thorn forest types, comprising a mix of teak and various other types of vegetation.

## MATERIALS AND METHODS

Field trips were conducted from July 2023 to August 2025 in various parts of the Niirmal district forest area. It has been found that fibre from different plants is used in the preparation of rope, and gathered some information through interviews with older adults in the village and the Tribal headman. Generally, the stem bark of plants is used as fibre, known as bast fibre. By extracting bast fibre from various plants and interweaving it, a rope is made. Sometimes, leaves, straggler stems, climber bast fibre, or fresh bark are used for binding. There are various methods for extracting compounds from other plants. Some plants, such as *Abelmoschus manihot*, *Hibiscus subdariffa*, *Calotropis procera*, and *Ricinus communis*, are damped in water after their fibre is removed. In contrast, plants such as *Cyamopsis tetragonoloba*, *Saccharum bengalense*, and *Vigna unguiculata* are dried and crushed to obtain fibre from them. In some cases, the entire plant is used in the preparation of rope, as is the case with *Desmostachya bipinnata*. The plant species are listed alphabetically by family, followed by their botanical names, local names, and parts used in the preparation of rope (Table 1).

**Table – 1. List of the plants used in the preparation of rope**

Sl.No.	Botanical Name	Family Name	Plant Name	Local	Part Used for Rope
1	<i>Abelmoschus manihot</i> (L) Medic.	Malvaceae	Nalla benda		Stem fibre
2	<i>Abutilon indicum</i> (L) Sw.	Malvaceae	Thuthrabena, Duvvenakaya		Stem fibre
3	<i>Acacia nilotica</i> (L.) Del.	Mimosaceae	Nalla thumma		Stem fibre
4	<i>Agave americana</i> L.	Asparagaceae	Kitthanara		Leaf
5	<i>Alangium salvifolium</i> (L.f) Wang.	Alangiaceae	Oodugachettu		Stem bark
6	<i>Ampelocissus latifolia</i> (Roxb.) Planch.	Vitaceae	Adavi draksha		Fresh stem
7	<i>Bauhinia purpurea</i> L.	Caesalpiaceae	Devakanchanam		Stem bark

8	<i>Butea monosperma</i> (Lam.) Taub.	Papilionaceae	Moduga chettu	Stem bark
9	<i>Calotropis procera</i> (Ait) R. Br.	Asclepiadaceae	Jilledu	Stem bark
10	<i>Cassia auriculata</i> L.	Caesalpiniaceae	Thangedu	Stem bark
11	<i>Cannabis sativa</i> L.	Cannabiaceae	Ganja mokka	Stem-bast fibre
12	<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Dusari teega	Fresh stem
13	<i>Cocos nucifera</i> L.	Arecaceae	Kobbari	Fruit fibre
14	<i>Crotalaria juncea</i> L.	Papilionaceae	Janumu	Stem fibre
15	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Papilionaceae	Gorichikkudu, Gokarakaya	Stem bark
16	<i>Desmostachya bipinnata</i> (L.) Stapf.	Poaceae	Darbha gaddi	Fresh/Dry leaf
17	<i>Gossypium hirsutum</i> L.	Malvaceae	Patthi	Seed coat
18	<i>Helicteres isora</i> L.	Sterculiaceae	Purikeya, Nulithadu	Stem bark
19	<i>Hibiscus subdariffa</i> L.	Malvaceae	Yerra gongura	Stem fibre
20	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Ulmaceae	Nemali nara	Stem bark
21	<i>Oriza sativa</i> L.	Poaceae	Varigaddi	Dry leaf
22	<i>Phoenix sylvestris</i> (L) Roxb.	Arecaceae	Eetha chettu	Fresh leaf
23	<i>Phyllanthus reticulatus</i> Poir.	Euphorbiaceae	Nalla pulicheri	Fresh stem
24	<i>Prosopis juliflora</i> L.	Mimosaceae	Sarkar thumma	Stem bark
25	<i>Ricinus communis</i> L.	Euphorbiaceae	Nall pulicheri	Stem bark
26	<i>Saccharum bengalense</i> Retz.	Poaceae	Ponica gaddi	Fresh leaf
27	<i>Typha angustata</i> Bory & Chaub.	Typhaceae	Tunga	Fresh leaf
28	<i>Vigna unguiculata</i> (Willd.) Ohwi & Ohashi.	Papilionaceae	Alachanda, Baberulu	Stem fibre

## Result and discussion

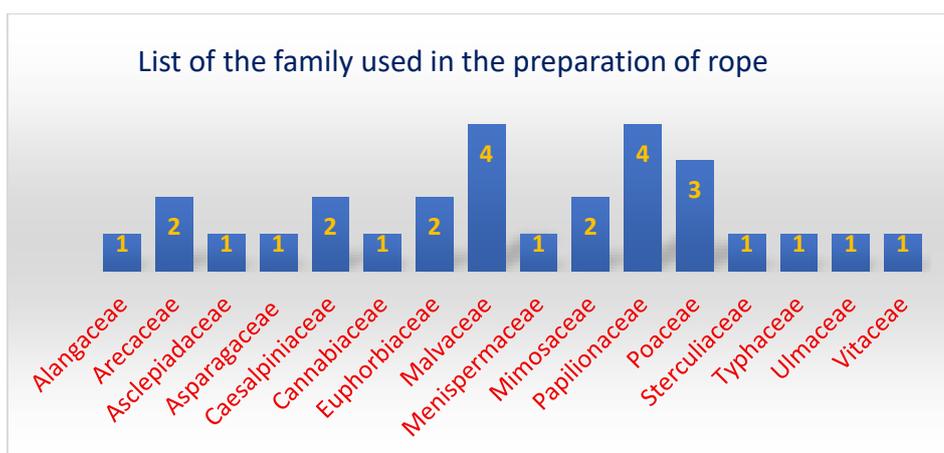
Although all the plants mentioned above can be used in manufacturing ropes, the quality of the rope depends on the type of fibres used in its making.

1. *Vigna unguiculata*, *Calotropis procera*, *Hibiscus subdariffa*, *Abelmoschus manihot*, *Cyamopsis tetragonoloba*, and *Crotalaria juncea* – superior quality ropes can be made using the fibres from these plants.
2. *Ricinus Communis*, *Saccharum bengalense* and *Desmostachya bipinnata* – medium quality ropes can be manufactured from the fibres from these plants.

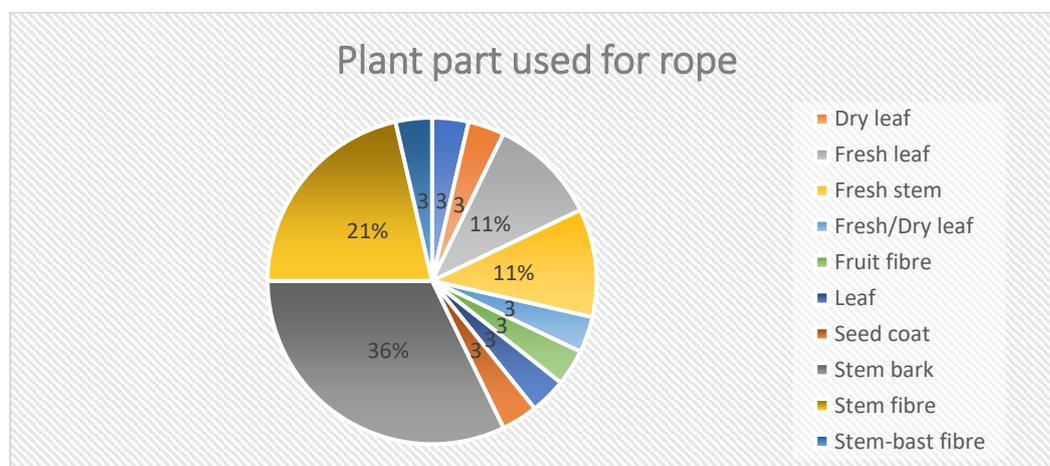
3. *Phoenix sylvestris* – though ropes can be made from this plant, the quality remains inferior.

## Conclusion

Data of 28 angiosperms belonging to 16 families were recorded regarding their use in the preparation of rope. The plant species are listed alphabetically by family, followed by their botanical names, local names, and parts used in the preparation of rope. The plant parts used mainly include the stem bark, dry leaf, fresh leaf, fresh stem, whole plant and weed coat. The most dominant families used for rope are Malvaceae, Papilionaceae (with four species), Poaceae (with three species), Arecaceae, Euphorbiaceae, Caesalpiniaceae (with two species), and the remaining families (each with one species) (Figure 1). Frequently utilised plant parts percentage were Stem bark 36%, Stem fibre (21%), Fresh leaf (11%), Fresh stem (11%), remaining Fresh/dry leaf, Frit fibre, Leaf, Seed coat and Stem-bast fibre (each 3%) (Figure 2).



List of the family used in the preparation of rope - Figure 1



Percentage of the Plant part used in the preparation of rope, Figure 2.



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