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LESS KNOWN FIBRE YIELDING PLANTS OF PENINSULAR INDIA

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Peninsular India has rich resources of plant raw materials. Relatively untapped resource of vegetable fibres has been taken up here for discussion.

It is common knowledge that vegetable fibres are widely used for paper, fabrics, cordage etc. Fibres for industry come mostly from conventional plant resources such as *Cocos nucifera* L., *Corchorus* spp., *Crotalaria* spp., *Hibiscus* spp., *Musa* sp., *Urena lobata* L. etc. Nayar (1978) has listed 36 wild or cultivated plant genera known to yield fibres. Hill (1952) observes that it is a remarkable fact that the most prominent present day fibres are of great antiquity. Mauersberger (1954) also corroborates this view Quoting the Bible.

The potential of several other plant species has remained unrecognised and untapped. Some plants known to possess fibre are utilised for other purposes like in medicine, for timber etc. *Cissus adnata* Roxb., whose stem is reported to yield cordage fibre, is better known only for its medicinal value. *Melilotus alba* Desr., is cultivated more for fodder than for its fibre which can be used for paper-pulp. Certain other species like *Hibiscus lunarifolius* Willd and *Streblus asper* Lour., are used for their fibre in Africa and Thailand respectively, but not in India.

According to Sircar (1948), "the vegetable fibre resources of India other than Cotton, Jute and Coir, consist of some 300 species". Out of these, about 130 species, say 43% are available in Peninsular India. Of these, some species of *Crotalaria*, *Hibiscus*, *Corchorus*, and to some extent certain species of *Aloe*, *Sanseverieria* and *Borassus* are produced on commercial scale. Out of 43% known fibre yielding plants of Peninsular India, only about 20.5% is actually exploited. The under-exploitation or non-exploitation of the plants known to possess fibre, is probably due to unfamiliarity with the plants and lack of knowledge about their distribution, to the fibre based industries. Sircar (1948) states, "the area occupied by the lesser known fibres is not recorded in official statistics probably because of their sporadic and wild growth". For instance, while some species like *Corchorus capsularis* L. and *C. olitorius* L., are cultivated for fibres, species of the same genus like *C. fascicularis* Lamk. and *C. trilocularis* L., are relatively untapped, because they are wild.

The herbarium can play a role as a data bank for plant based industries and research, in identifying the areas of concentration of fibre yielding plants. The Forest Department in collaboration with the Botanical Survey of India, can identify the fibre yielding plants and provide the data on their distribution. Steps can be taken to propagate those plants by cultivation in their own habitat, as A. E.

Haarer (1952) observes, "Many plants known to yield fibre have been discarded for they do not adapt themselves readily to variety of soils and environments. Local manpower can be used in the cultivation and extraction of raw materials and to supply them to the user-industries; or wherever necessary; cottage industries can be established in or around areas of the plants" habitat. This will help in providing employment opportunities to the villagers and to a certain extent improve the rural economy, now that there is a greater emphasis on rural development.

Only less known or little used prospective fibre yielding plants of Peninsular India are listed alphabetically below. Some of them are already under cultivation for other purposes. Fibre is also available in the form of residual by-product as in the case of *Manihot esculenta* Crantz and *Maranta arundinacea* L. These plants can be utilised as alternate or supplementary sources for fibre.

Abelmoschus manihot (L.) Medic. (Malvaceae)
Stem fibre is tough and comparable to jute; may be used for making inferior type of wrapping cloth, strings and cords.

Agave vera-cruz Mill. (Amaryllidaceae)
Leaves yield 1.5 to 2.5% fibre which is stronger than Cantala fibre. Useful for ropes, cordage and mat-making.

Azanza lampas (Cav.) Alef. (Malvaceae)
Yield of fibre from the stem ranges from 198 to 297 kg. per hectare. Useful for fabrics, cordage and fishing nets.

Canna indica L. (Cannaceae)
Fibre can be used as a substitute for jute, for making rope, twine and sack cloth.

Debregeasia ceylanica Hook. f. (Urticaceae)
Bark yields tough long strands of silky fibre. Useful for ropes and cordage.

Desmodium gangeticum (L.) DC. (Fabaceae)
Fibrous stems are said to be suitable for paper making.

Erinocarpus nimmonii J. Grah. (Tiliaceae)
Bark yields a rope fibre.

Gonostegia pentandra (Roxb.) Miq. (Urticaceae)
Reported to yield fibre useful for cordage.

Goniothalamus wightii Hook. f. & Thoms. (Annonaceae)
Bark yields a strong fibre.

Hibiscus furcatus Willd. (Malvaceae)
Stem yields a strong fibre suitable for cordage. The fibre has a breaking strain of 89 lb. when dry and 92 lb. when wet.

H. platanifolius (Willd.) Sweet (Malvaceae)
Stem fibre useful for cordage and twine.

H. surattensis L. (Malvaceae)
Stem yields a strong fibre of good quality.

Holostemma annulare (Roxb.) K. Schum. (Asclepiadaceae)
Fibre from the bark is reported to be suitable for cordage and paper making.

Morus alba L. (Moraceae)
Bark fibrous may be used for paper making.

Parkinsonia aculeata L. (Caesalpiniaceae)
Bark fibre is suitable for mixing with other pulps in paper making.

Sida glutinosa Cav. (Malvaceae)
Bast fibre may be used for making ropes.

Themeda triandra Forsk. (Poaceae)
The fibre (value—32.23 on dry basis) is found suitable for paper making.

T. quadrivalvis (L.) Kuntze (Poaceae)
Fibre available (value—26.15 on dry basis) is a source of pulp for writing and printing paper.

Triumfetta pentandra A. Rich. (Tiliaceae)
Fibre is comparable to jute in quality and is better than *T. rhomboidea* used in Tamil Nadu.

Tylophora indica (Burm. f.) Merrill (Asclepiadaceae)
Reported to yield a fine, strong and silky fibre, useful in the manufacture of extra-fine fabrics.

Ventilago denticulata Willd. (Rhamnaceae)
Bark-fibre is useful for cordage.

Waltheria americana L. (Sterculiaceae)
Bark yields a fibre similar to jute.

In addition, the following plants have also potential fibre yielders : *Dichrostachys cinerea* Wight & Arn., *Dillenia pentagyna* Roxb., *Dolichandrone spathacea* K. Schum., *D. falcata* Seem., *Erythrina suberosa* Roxb., *Gnidia glauca* (Fresen.) Gilg., *Grewia glabra* Bl., *G. microcos* L., *G. rothii* DC., *Malvastrum coromandelianum* (L.) Garcke, *Melilotus alba* Desr., *Miliusa velutina* (Dunal) Hook. f. & Thoms., *Millettia extensa* Benth. ex Baker, *Mitragyna parvifolia* (Roxb.) Korth., *Ougeinia oojeinensis* (Roxb.) Hochr., *Polyalthia coffeoides* Thw., *Stephania glabra* Miers., *Sterculia balanghas* L., *Sterculia foetida* L., *Triumfetta pilosa* Roth, *Urtica ardens* Link., *Wikstroemia indica* (L.) Mey., and *Xylia xylocarpa* (Roxb.) Taub.

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