

# Documenting Extraction Process of *Helicteres isora* Fibre

Charlotte Facho<sup>1</sup>, Dr. Anshu Sharma<sup>2</sup>

Department of Textile Science & Apparel Design, S.N.D.T. Women's University, Mumbai, India

**Abstract:** *Helicteres isora* plant is commonly known as Indian Screw Tree which can be found throughout India. It is a sub-deciduous shrub or a small tree with stem 1-2 inches in diameter and reaching a height of 5-15 ft. A study was conducted on documenting the traditional extraction process- harvesting, retting and drying of the fibre. Thin ropes made from these fibres are used for household use and thick ropes for agricultural purpose. The isora fibre has the potential for making handicraft products.

**Keywords:** *Helicteres isora* fibre, harvesting, retting, drying, rope making

## 1. Introduction

The *Helicteres isora* plant belongs to Family-Sterculiaceae commonly known in English as 'Indian Screw tree.' The Indian names are Hindi: marorphali, marodphali, gomathi. Sanskrit: Avartani. Marathi: murad sheng, kewad. Kannada: pedamuri. Malayalam: ishwarmuri. Tamil: balampari. Bengali: antmora. Gujarati: maradashingh. Telugu: guvadarra. Oriya: murmuriya (Kumar & Singh, 2014). The plant is found in Asia including India, South China, Malay Peninsula, Java and Saudi Arabia. It is also found in Australia, Phillipines and West Indies. It is a sub-deciduous shrub or a small tree with stem 1-2 inches in diameter and reaching a height of 5-15 ft. Flowers are red in colour and turn pale blue when old or leaden blue when attacked by insects (Sabale et. al, 2012). The plant is covered with grey bark used for medicinal purpose. The bark is also a source of strong fibre used as cordage for making cots, tying cattle and ploughs (Fern Ken, 2014).



Figure 1: *Helicteres isora* plant

The best type of isora fibre is obtained when the plants are 1-1.5 years old; the plants older than 2 years yield coarse and brittle fibre. The chemical composition of *Helicteres isora* is 74.8% cellulose, 23% lignin, 0.92% ash, 1.09% fat and moisture content 5-6% (Joshy M. K., 2007).

## 2. Objectives of the study

- 1) To document the harvesting process, retting process and drying process of *Helicteres isora*.
- 2) To document the traditional uses of *Helicteres isora* fibres.

## 3. Methodology

A descriptive research design was undertaken. In order to get complete and authentic information, multiple field visits were planned in Quepem taluka of Goa. The data was collected with the help of interview and observation method along with photographs and video documentation. The questionnaire schedule dealt with closed and open-ended questions on harvesting process, retting process, drying process, rope making and their uses.

## 4. Results and Discussion

### a) Harvesting Process

The *Helicteres isora* plant naturally grows throughout Goa on its own in forests and on the embankments of coconut groves as weed. It coppices well, shooting up rapidly when cut. It is easily propagated by seed, but vegetative propagation with stem cuttings is also possible. The quality of bast fibre depends upon the maturity of plant, climatic conditions, time of harvesting and method of retting.



Figure 2: Harvesting process of *Helicteres isora* plants

'Kevan or Kevani' plants shoots are said to be matured for harvesting between 2 years and are harvested during the months July-September. As per the household need around 50 – 100 matured plants shoots are harvested in a day. The plants are cut using a sickle about 15 cm above the ground. The stalks upper taper end and side thin branches are cut. The stalks are sliced vertically in the middle into two parts with a sickle known as 'faalap' process. The outer plant bark 'hevla' is peeled off with bare hands and a bundle of around 20-25 inches diameter is kept ready for retting. The inner woody stem is dried and used as firewood.

The unretted fresh *hevl* locally known as 'modvaye' are used as the centre thread to make garlands and for tying fences.



Figure 3: Unretted *Helicteres isora* fibre



Figure 4: Tying fence

#### b) Retting Process

An important step towards obtaining a good quality fibre is the retting process. This process starts with immersing of the prepared bundles into village stream or shallow wells as per the availability. A stone as a load is placed over the stem bundles so that they remain immersed in water. After certain days these stem bundles are untied and the outer greenish slimy layer of the sheath is rubbed with bare hand in water to expose the clean whitish fibre strands called retted isora fibre. Over retting gives a harsh feel and a darker colour fibre.

- Well retting - Retting in well is done in the month of July when wells get filled with rain water. It takes around 15 days for the completion of the retting process.
- Stream retting - Retting in stream is done in the month of September nearing the end of rainy season when there is slow flow of water in the stream. It takes around 19 days for the completion of the retting process.



Figure 5: Retting process of *Helicteres isora*

#### c) Drying Process

The wet isora fibre is hanged vertically on a rope for drying in the sun for 1-2 days. This gives a soft, silky and lustrous fibre of pale yellow to silver colour. The ready fibre strands called 'vaye' are stored in a sack which is kept hanging from a rope or placed on the loft of the house.



Figure 6: Drying process of *Helicteres isora* fibres

#### d) Rope Making Process

The auspicious day for making the ropes from isora fibre strands is Dusshera day. These fibre strands are hand separated into the desired sizes and twisted to make thin rope and thick rope.

- Thin ropes - Thin ropes of 2mm diameter are prepared by twisting two fibre bundles together on the palm of the hand (Fig.7). These ropes are used to tie rice sacks (Fig. 10) and to tie broom sticks together (Fig.9). It can also be used to tie bamboos when erecting a pandal in front of the house.
- Thick ropes - Thick ropes of 6mm diameter are prepared by twisting three fibre bundles together on the thigh of the leg (Fig.11). These ropes can be used in drawing water from well, rope used while plucking jack fruit, mangoes or to climb on the coconut tree. These ropes are also used to make 'daven' - one cow halter (Fig.13) 'davon' - three cow halter (Fig.14), which is used during thrashing of rice paddy grains. Thick ropes are also used for tying bundles of green grass and hay to be used as fodder or tie fire wood collected from jungle.



Figure 7: Thin rope making



Figure 8: Thin ropes



Figure 9: Tying broom stick



Figure 10: Tying sacks



Figure 11: Thick rope making



Figure 12: Thick ropes



Figure 13: One cow halter



Figure 14: Three cow halter

activities. Experienced male members are involved in this process and young boys sometimes help in doing minor jobs. The third day of Diwali festival is known as 'Gorvaam Paadvo' – the only day when farm animals get respite from their daily drudgery. Early in the morning the men take a bath and get ready to perform rituals, the women of the house start preparing steamed rice cakes made using parboiled rice, palm jaggery and grated coconut. This rice cake is fed to shed animals, the old halter is removed and the new halter is put around their neck along with marigold garland.

A day before this festival, a market sale is held where isora fibre products are sold. The plain retted single isora fibre is sold for Rs 10. The thin and thick ropes are hand measured in meters and sold for Rs 15-25 per meter. One cow halter rate is Rs 100 and three cow halter Rs 500. The garlands made of marigold flowers using isora fibre as string is sold for Rs 20-30. Brooms made from coconut fronds are tied together on top using thin isora ropes and sold for Rs 80-100.

Earlier people from villages used to sell isora fibre and its products like ropes and halters in large quantities in the market. But in recent years traditional farming is replaced by modern farming techniques and the need for handmade isora products has decreased. So very few families are doing this indigenous isora fibre processing for their household and agricultural use.



Figure 15: Gorvaam Paadvo puja



Figure 16: Tying halter to cattle

**e) Socio-economic Importance**

The main occupation of the Velip community is farming and carry out extraction process of isora fibre to support farming



**Figure 17:** Selling different products on streets made using isora fibre

## 5. Conclusion

A study was conducted in the state of Goa - India on documenting traditional extraction process of harvesting, retting, drying of *Helicteres isora* fibre and its uses. The plant is a rain fed crop and grows naturally on hilly slopes and on the embankments of coconut groves. The plants are annually harvested during the monsoons so that new shoots regenerate faster. Retting of stem bark is done instream or well and dried on a rope in the sun. The isora fibres are hand twisted to make thin ropes used for household purpose and thick ropes for agricultural use. The fibre has lot of potential in making handicraft products such as wall hangings, pot holders, table coasters, door mats and fashion accessories.

## References

- [1] Fern Ken, 2014 "Useful Tropical Plants – *Helicteres Isora*."
- [2] Joshy M. K. 2007. "Isora fibre reinforced polyester and epoxy composites." Cochin University of Science and Technology, Kochi .
- [3] Khedekar Vinayak Vishnu. 2013. "Eco-culture Goa Paradigm". Broadway Publishing House, First Edition. 88, 156.
- [4] Kumar N, and Singh A. K. 2014. "Plant Profile, phytochemistry and pharmacology of Avartani (*Helicteres Isora* Linn): A review." *Asian Pacific Journal of Tropical Biomedicine* A22-S26,1.
- [5] Sabale Pramod M., Grampurohit Nirmala D, Banerjee Subir K, Gaikwad Dushant D, and Gadhave Manoj V. 2012. "Recent Advances on the Phytochemical and Pharmacological Profile of Plant *Helicteres* Linn." *International Research Journal of Pharmacy* 3-4.