

**JUTE**  
*Corchorus* sp (2n=14)  
Tiliaceae

The genus *Corchorus* includes about 40 species. In India only 8 species occur. Two cultivated species are  
*C.capsularis* : White jute 50 races occur in this  
*C.olitorius* : Tossa jute 8 races occur in this.

Both the species are not crossable. Among the two *olitorius* yields more fibre/unit area. The fibre is finer, softer, more, lustrous and less rooty than *capsularis*. *Olitorius* occupies about 25% of jute area in India. One of the draw backs of **Tossa** jute is pre mature flowering if the varieties are sown earlier in March-April in early monsoon rains. The pre mature flowering leads to profuse branching and deterioration in fibre quality.

*Capsularis* strains are characterised by a single flush of flowering at the end of single vegetative period. Based on maturity, the varieties in *Capsularis* are divided in to  
Early - Flowering in July  
Medium - August  
Late - September.

**Breeding objectives**

**1. Breeding for high yielding short duration jute varieties.**

Early varieties are generally low yielders whereas late varieties are high yielders. So to combine high yield with earliness is one of the main objectives. Yield is positively correlated with plant height, basal diameter of stem, fibre-stick ratio. Higher photo synthetic capacity with increased lamina length, breadth, petiole length and leaf angle at 40° also contribute to yield.

**2. Breeding for quality fibre**

In jute quality is negatively, correlated with yield. The quality characters are

- a) Fibre length.
- b) Fibre strength
- c) Fibre colour
- d) Lustre
- e) Percentage and quality of retting
- d) Proportion of faults such as roots, specs, knots.

Environment plays a major role in quality. Alternate and fluctuating bright sunshine, humidity and temperature and rainfall at minimal level are favourable for improved quality.

Further retting in clear and slow running water gives good quality fibre. The tall and thick plants in general gives inferior fibre than that in short and thick plant.

### 3. Breeding for pest and disease resistant varieties

In pests, stem borer and aphids cause greater damage and in diseases *Macrophomena* is major. Though resistance sources are available in other related species, the crossability barrier prevents transfer.

### 4. Breeding varieties for high seed yield :

Since jute is cut for fibre at 50% flowering stage, it is essential to reserve some plants for production of seeds. The fibre obtained from seed crop will be poor in quality. Hence it is necessary to breed varieties specially for high seed production with out losing quality characters.

### 5. Breeding for *olitorius* varieties having non-shattering habit coupled with non-pre flowering habit.

JRO 524

JRO 7885

Sudan green x JRO 632

### Breeding Methods:

#### 1. Germplasm building and Utilisation

Central Jute Technological Research Institute, Calcutta is maintaining the Jute collections. This shows wide range of variability thus offering a great scope for improvement by selection and hybridisation.

**2. Introduction** : Introduced short duration varieties are Jap green, Jap red, Jaichung sudan green.

#### 3. Hybridization and selection

a) **Inter vareital:** Multiple crossing and selection are followed both in *olitorius* and *capsularis* improvement.

In *olitorius* improved varieties are JRO 524, JRO 7885.

In *capsularis* JRL 412, JRL 919

Since yield and quality are negatively correlated a balance must be struck in breeding for improved varieties.

b) **Inter specific cross:**

So far not successful. Attempts were made by straight cross mixed pollen method, Stigmatic paste method, self anther paste method, stigma cut method polyploidy breeding. But none of them proved successful. Difference in embryo endosperm growth is the reason

**4. Mutation breeding** : Using x rays useful jute mutants were obtained at Calcutta JRC 7447 and Rupali two varieties.

**MESTA, KENAF**  
**BIMLI JUTE**  
*Hibiscus cannabinus*  
*H.sabariffa* Var.*altissima*  
*Malvaceae*

In Thailand **Siami jute** or **Roselle in India.**

Both the species are important jute supplements and show wide adaptability unlike jute. At present both the species are known as **Mesta.**

**Place of origin :**

*H.cannabinus* have its possible origin in Africa *H.sabadariffia* - Asia.

Kenaf is used for making ropes, twines, fishing nets and also in the paper pulp making from kenaf stalks especially fine paper, structural boards.

*H.cannabinus* : **mesta**

Compared to jute mesta is of inferior in quality in respect of fineness, lusture, and colour. Mesta varieties show poor performance in spinning because the fibre is coarse, stiff, brittle and irregular in cross section mesta alone cannot be spun in jute machines unless it is mixed with jute in some proportion.

*H.sabadariffa* var.*altissima* (**Roselle**)

Roselle is an useful substitute to jute. It is also called as *Siamijute* two types are available.

- i. Tall non branching types cultivated for fibre.
- ii. Dwarf, bushy wild type used as green and edible calyx as pickle.

**Breeding objectives :**

**1. Breeding of high yielding short duration mesta varieties**

(Similar to Jute)

**2. Breeding for quality fibre**

(Similar to Jute)

**3. Breeding for pest and disease resistant varieties.**