

Cost of Non-woven Materials

Requirements	Quantity	Cost (Rs.)
Raw material (bhindi fibre)	20 kg	3200
Processing cost of non-woven fabric	17 m	16,000
Total cost of non-woven fabric	17 m	19,200
Cost per meter of non-woven fabric		1,130 / m



Oven gloves



Thermo tiffin bag

Cost analysis of non-woven fabric products

Product	Fabric required (m)	Cost of fabric (Rs)	Acc. + Labour Rs)	Total cost (Rs)
Oven Gloves (Laboratory)	0.95	1,073.50	270	1,343.50
Oven Gloves (Domestic purpose)	0.80	904.00	250	1,154.00
Thermo tiffin bag	0.90	1,017.00	300	1,317.00

Profitability and B:C ratio of non-woven products

Product	Selling price (Rs)	Total cost (Rs)	Net profit (Rs)	B:C ratio
Oven Gloves (Laboratory)	1,747	1,343.50	403.50	1.30
Oven Gloves (Domestic purpose)	1,500	1,154.00	346.00	1.30
Thermo tiffin bag	1,712	1,317.00	395.00	1.30

Conclusion

With the development of efficient extraction and processing, cotton rose fibre can emerge as a valuable resource for the textile industry, supporting the transition toward eco-friendly, biodegradable, and sustainable fibre-based products. Its integration into mainstream textile applications would not only diversify raw material sources but also enhance environmental sustainability within the sector.



Publication No.
AAU/DR/26/BU/951/2025-26



EXTRACTION AND PRODUCT DEVELOPMENT FROM COTTON ROSE FIBRE



Dr. Nabaneeta Gogoi
Pankaj Bharali
Ms. Mandeep Digra

AICRP - Women in Agriculture
Faculty of Community Science
Assam Agricultural University
Jorhat-785013

Introduction

Cotton rose fibre is a natural bast fibre extracted from the stem bark of *Hibiscus mutabilis*, an ornamental plant related to jute, kenaf, and other hibiscus species. Although widely available in the North Bank Plain and Upper Brahmaputra Valley zones of Assam, the stems are often discarded as waste, resulting in biomass loss.

Despite the extensive use of related species for fibre production, the fibre potential of *H. mutabilis* remains largely unexplored. Owing to its renewability, biodegradability, moderate strength, and good moisture absorption, cotton rose fibre shows promise as a sustainable alternative to conventional bast fibres for textiles and nonwoven applications.

Botanical Description

Kingdom:	Plantae
Division:	Magnoliophyta
Class:	Magnoliopsida
Order:	Malvales
Family:	Malvaceae
Genus:	<i>Hibiscus</i>
Species:	<i>Hibiscus mutabilis</i> L.
Common Name:	Cotton Rose / Confederate Rose / Changeable Rose

Extraction

Collection of stem and bark



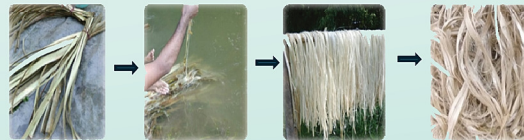
Cleaning, trimming, and tying into bundles



Water retting for 15 days
(microbial decomposition)



Washing and shade drying



Benefit–Cost Ratio

Particulars	Value
Quantity of stalk processed	250 kg
Fibre obtained	12.5 kg
Processing days	2 days
Cost of fibre extraction	Rs160/kg
Total cost	Rs 2,000 (12.5 × 160)
Selling price	Rs 250/kg
Total return	Rs 3125 (12.5 × 250)
B:C Ratio	1.56 (3,125/2000)

Cost Analysis of Cotton Rose Fibre Extraction

Particulars	Cotton Rose Fibre
Quantity of stem processed (kg)	250
Fibre yield (%)	5.0 (50 g from 1 kg stem)
Fibre obtained (kg)	12.5
Labour cost per day (Rs)	1,000
Total processing days	2
Total labour / processing cost (Rs)	2,000
Cost per kg fibre (Rs/kg)	160

Non-Woven Fabric Production

Softening and Opening of Fibres



Web Formation and Carding



Needle Punching