

## Cost Recovery / Benefit–Cost Ratio

Particulars	Value
Total extraction cost	Rs 447
Fibre obtained	5 kg
Selling price	Rs 200/kg
Total return (5 kg ×Rs 200)	Rs 1000
Net return (1000-447)	Rs553
<b>B:C Ratio</b>	<b>2.24 : 1</b>

## Processing And Handicraft Product Development from Banana Fibre

Fibre cleaning (by combing)

↓  
Fibre braiding

↓  
Shaping and sewing  
(according to product)

↓  
Final product



## Cost estimation of product made from Banana fibre

Product	Fibre (g)	Fibre Cost (Rs 89/kg)	Acc. + Labour (Rs)	Total Cost (Rs)	Units / kg
Necklace	20	1.78	30	<b>31.78</b>	50
Ear ring	10	0.89	30	<b>30.89</b>	100
Hand bag	150	13.35	140	<b>153.35</b>	7
Table mat	100	8.90	120	<b>128.90</b>	10

## Conclusion

Banana pseudo-stem fibre represents a sustainable solution for agricultural residue valorization. Mechanical extraction is effective and eco-friendly. The developed union woven fabric and value-added products highlight the commercial and environmental potential of banana fibre in sustainable textile and handicraft sectors.



Publication No.  
AAU/DR/26/BU/953/2025-26



## EXTRACTION AND PRODUCT DEVELOPMENT FROM BANANA FIBRE



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## Introduction

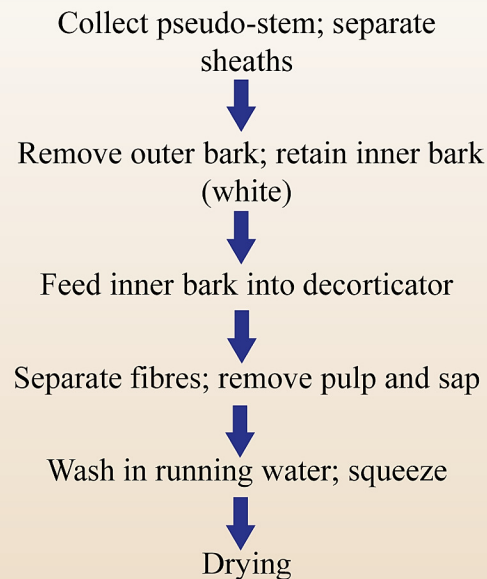
Banana pseudo stem fibre is a valuable natural fibre extracted from the sheath of the banana plant after fruit harvesting. Traditionally treated as agricultural waste, the banana pseudo stem offers significant potential for value addition through fibre extraction and diversified product development. Utilizing this abundant biomass not only reduces environmental waste but also contributes to sustainable resource management.

The integration of banana fibre into textile applications promotes sustainable innovation, enhances rural livelihood opportunities, and supports circular economy practices by transforming agricultural residue into value-added products.

## Anatomy of banana plant

Kingdom	Plantae
Division	Angiosperm
Order	Zingiberales
Family	Musaceae
Genus	Musa

## Fibre extraction



## Yield and Processing Economics

Parameter	Calculation	Value
Machine power	$3 \text{ HP} \times 0.746$	2.24 kW
Running time	Per day	7 hrs
Electricity consumption	$2.24 \times 7$	15.68 kWh
Electricity cost	$15.68 \times \text{Rs } 8$	Rs 125/day
Labour cost	1 worker/day	Rs 300/day
Machine depreciation	$80,000 \div (10 \times 365)$	Rs 22/day
<b>Total operational cost</b>	Labour + electricity + depreciation	<b>Rs 447/day</b>
Pseudostem processed	Per batch	100 kg
Fibre recovery	Assumed	5%
Fibre obtained	5% of 100 kg	5 kg
<b>Processing cost per kg fibre</b>	$447 \div 5$	<b>≈ Rs 89/kg</b>
Fibre yield potential	From 60–80 t/ha/year	3–4 t fibre/ha/year