

PRESENT STATUS OF COIR PROCESSING IN BANGLADESH

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[Date Received : 17.08.1996]

Key words : Coir, Processing, Production

ABSTRACT

This article presents the findings of a study on coir processing in 10 selected districts of Bangladesh during the period of June-December, 1994. Information were collected by personal interviewing and physical observations. The coir processing techniques practiced by the farmers were - crushing of husks before retting, retting for 2-35 days depending on the nature of crushing and the quality of coir, crushing after retting, separating the fibre from pitch and cork and drying them for a period of 2-3 days. All operations were done manually except in Faridpur where the crushing of husks was done by roller machine and found to be the most economic method. Coir processing is generally practiced by small and marginal farmers. It is a small capital-intensive and profitable business. If low cost crushing and fibre separating machines may be introduced, coir processing may become one of the attractive and profitable cottage industry in Bangladesh.

INTRODUCTION

Coir or coconut fibre is an important product that is obtained by decorticating of coconut husk. It is an industrial hard fibre of uniform and golden colour which is resilient, durable and resistant to dampness. It is a biodegradable, hydrophobic, non-toxic, non-plastic and environmentally compatible material suitable for the production of geotextiles (Abdullah *et al.*, 1992). Many important products such as yarns, ropes, brushes, mattresses, matting, carpets, floor mats, foot mats, cushions, packing material, insulating material, etc. are made from coir (Woodroof, 1978; Thampan, 1991).

Abdullah *et al.* (1992) reported that coir is blended with jute cuttings to manufacture geojute. They observed that hydrophobicity and strength of fabrics are improved and the biodegradability of the products are reduced to a great extent. The world production of coir is about 282 thousand tons and

Bangladesh stands fourth among the coir producing countries and produces 5.80 thousand tons of coir. The production of coir in some coconut growing countries in the world are shown in Table 1.

There are two major types of coir available in the world market. Coir extracted from green husks is termed as white or retted fibre. It is the longest and finest fibre and suitable for spinning into coir yarn for making mats, matting, rugs, carpets, ropes etc. Brown fibre is extracted from dry or semi-dry husks. It is divided into two types- bristle fibre and mattress fibre. Bristle fibre is thick, long and stiff and is used to make brushes, ropes, brooms etc. Mattress fibre is shorter and rough and used for making bed mattress, cushions, packing material, etc. The type and quality of coir depend on the processing method and the quality of coconut husks. Various methods are used for processing of coir such as natural, mechanical and chemical (Prabhu, 1976; Woodroof, 1978).

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Table 1 Production of coir in different countries.

Country	Production (000 tons)	Country	Production (000 tons)
India	140.00	Mayanmar	2.17
Sri Lanka	113.18	Kenya	2.00
Tanzania	8.50	Seychelles	1.90
Bangladesh	5.80	Malaysia	1.50
Thailand	3.00	Mozambique	1.00
Philippines	2.50	Morocco	0.50

Source : Thampan (1991)

In Bangladesh coir is processed by small or marginal farmers. Coir is produced by small cottage industries. In some coconut growing countries like India, Sri Lanka and Malaysia, coir is processed commercially by industries (Punchihewa, 1990). Information about coir processing in Bangladesh is lacking. This study was undertaken to investigate the present status of coir processing in Bangladesh.

MATERIALS AND METHODS

The study was conducted during the period of June-December, 1994. The data for the study were collected by interviewing the coir processors through a questionnaire and by physical observations. A total of 50 coir processors were selected taking randomly 5 processors from each of the 10 selected districts of Bangladesh (Table 1). The questionnaire was prepared to include information on coir processing methods, quality of husks, crushing before or after retting, crushing methods, retting periods, methods of separating fibre from the pitch, method and period of drying, chemical treatments, uses of coir, labour requirement, price of husks, cost of producing coir, demand of coir and coir products and marketing facilities. The advantages and disadvantages of coir processing were also recorded. The collected data were processed and analyzed for interpretation.

RESULTS AND DISCUSSION

The coir processing methods practiced in ten selected districts of Bangladesh is shown in Table 2.

All the areas except Faridpur and Jessore, husks are crushed before soaking in water. Crushing is done by wooden mallet or dheki. The crushing of husks by mallet is better than that by dheki. The labour requirement for crushing by dheki is significantly lower. Crushing before soaking makes the husks soft but increases the retting period significantly. Without crushing, the retting period ranges from 35 to 38 days; crushing reduces this period to 2 - 15 days. Mallet crushing reduces the retting period to 2.0-15 days. In India, the retting periods of crushed and uncrushed husks are 3 and 6 months, respectively (Thampan, 1981). In all the areas, the husks are retted in fresh water.

Thampan (1981) reported that the natural retting in saline water is the best because it improves the colour and durability of the fibre. In the Southern coastal region of Bangladesh, people soak husks in fresh water although saline water is available.

Only in Faridpur (Kanaipur) retted husks are crushed by roller machine. The crushing capacity of machine is 200 husks/hr, whereas a man can crush manually 20-25 husks/hr. In all areas, fibre is separated from pitch and cork manually which is a time consuming process. The fibre is dried in the sun for a period of 1.5-3.0 days in all the areas. Nathanael (1964) reported that in Sri Lanka separation of fibre is done by machine and dried under shade to prevent discolouration. Only in Pirojpur area white fibre is made from green husks and treated with sulphur fumigation. A systematic coir processing methods in Bangladesh is shown in Fig. 1.

The yield of coir as found in Barisal, Pirojpur and Jessore is 100 kg per 1000 husks and in other areas 140 - 160 kg. Investigators reported that the yield of coir per 1000 husks varies from 80 to 100 kg in India and Sri Lanka (Nathanael, 1964; Bhat, 1976; Thampan, 1981). The variations may be due to error in the prediction of yield by the processors and differences in size of the husks at different locations.

Table 2 Coir processing methods in the selected areas of Bangladesh

Selected areas	Coir processing methods							
	Method of crushing before retting	Retting period (days)	Method of crushing after retting	Method of separation of fibre	Period of drying fibre (days)	Chemical treatment	Grade of fibre	Yield of fibre kg/1000 husks
Barisal	Mallet	3.5	Mallet	Manual	1.5	No	B + C	100
Pirojpur	Mallet	2.0	Mallet	Manual	1.5	Sulphur	A+B+C	100
Faridpur	None	37.5	Machine	Manual	1.5	No	B+C	150
Bagerhat	Mallet	7.5	Mallet	Manual	2.5	No	B+C	160
Khulna	Mallet	10	Mallet	Manual	3.0	No	B+C	150
Jessore	None	35	Mallet	Manual	2.5	No	C	100
Gazipur	Dheki	8.5	Dheki	Manual	1.5	No	C	150
Lakshmipur	Dheki	10	Dheki	Manual	2.5	No	C	150
Comilla	Dheki	10	Mallet	Manual	2.5	No	C	140
Cox's Bazar	Dheki	10	Mallet	Manual	3.0	No	C	150

Grade A = White fibre, Grade B = Bristle fibre and Grade C = Mattress fibre

In Barisal, Pirojpur, Faridpur, Bagerhat and Khulna both bristle and mattress fibres are produced and in other areas only mattress fibre is produced. Sophisticated materials like floor mats, matting, carpets, tennis mats are made from white fibre and it has high market price. Brushes, ropes, foot mats are made from bristle fibre whereas mattress fibre is used to make bed mattress, cushions for rickshaw, bus, scooter etc. and packing materials.

The economic analysis of coir processing is shown in Table 3. The price of husks in different areas varies from Tk. 275.00 to Tk. 350.00 per 1000 husks.

The labour requirement for coir processing in all areas was found similar and the range of 8-12 man-day per 1000 husks. In Faridpur, crushing is done by machine and the labour requirement for coir processing is only 3 man-day per 1000 husks. The price of coir per kg varies from Tk. 7.50 to Tk. 18.00. The reason of variation in price of coir is the quality. The highest BCR is found in Faridpur

because crushing is done by machine which reduces labour requirement significantly.

The BCR indicates that coir processing in Bangladesh is profitable, but the coir products have competition with synthetic materials. The use of coir products help utilize natural resources without affecting the environment.

CONCLUSION

Coir processing is a simple, less capital-intensive and profitable business in Bangladesh. If low cost crushing and fibre separating machines could be made available, coir processing would become more attractive and profitable in the form of a cottage industry in Bangladesh contributing to substantial increase in the income of the farmers.

The use of coir products can replace synthetic fibre which is non-degradable and hazardous to environment.

Table 3 Economic analysis of coir processing in the selected areas of Bangladesh

Selected areas	Price of 1000 husks (Tk.)	Yield of coir per 1000 husks (Tk.)	Labour required for 1000 husks	Labour + Machine costs (Tk.)	Total coir processing cost (Tk.)	Price of coir (Tk./kg)	BCR value
Barisal	280	100	8	480	760	18.00	2.36
Pirojpur	275	100	10	600	875	15.00	1.74
Faridpur	300	150	3	180+50	330	8.50	2.41
Bagerhat	300	160	12	720	1020	7.50	1.18
Khulna	290	150	12	720	1010	8.00	1.19
Jessore	300	100	11	660	960	10.00	1.04
Gazipur	325	150	12	720	1045	9.00	1.29
Lakshmipur	400	150	10	600	1000	8.00	1.20
Comilla	350	140	12	720	1070	8.50	1.11
Cox'sbazar	320	150	12	720	1040	7.50	1.08

Labour cost = Tk. 80.00 per 8 hr. day.

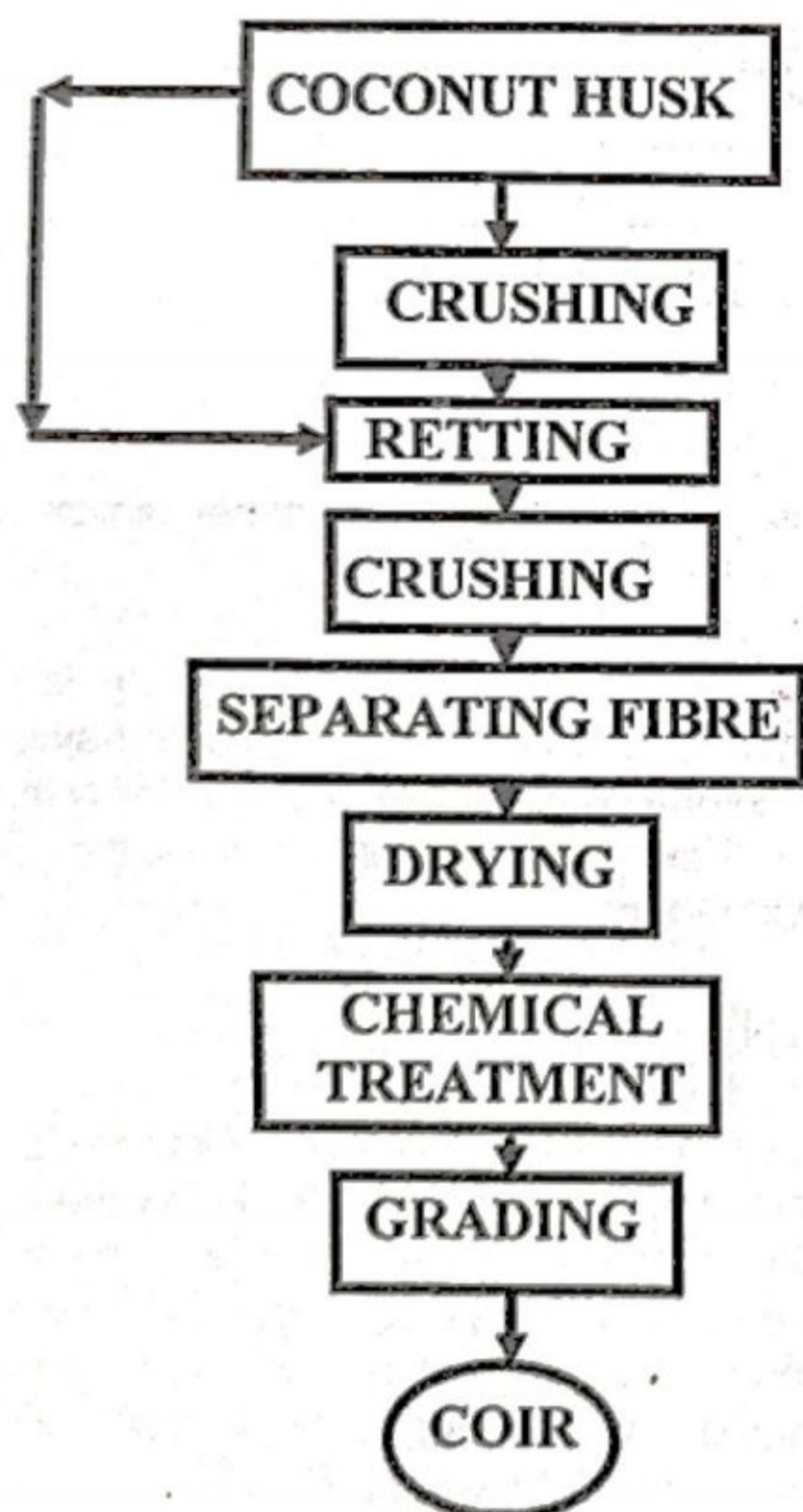


Fig. 1 System of coir processing

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