

A Study on Consumption Pattern of Coir Pith and Coir Mats in Chennai District of Tamilnadu

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Abstract: At present, there is a great deal of interest in developing technology towards the use of natural fibre materials in cement composites. Natural fibre are present in relatively large quantities all over the world and developing countries are produced natural vegetable fibres. Fibres such as those from coconut, bamboo, wood cellulose, wood chips, leaves, barks, seed and fruits have been used in sand-based cement products. Fibres can be divided in to two categories; natural and man-made. The advantages of using natural fibres are that the materials are readily available, inexpensive and eco-friendly.

Keywords: Coir pith, coir mats, coconut nuts, Fibres, coconut industries and coir dust.

INTRODUCTION

The word ‘Coir’ comes from the Malayalam word ‘Kayar’ which means ‘to be twisted’. Coir is also called as “Golden Fibre” and coir is a natural fiber derived from husks of coconuts, and is used in a variety of products. It is also called as coconut fiber. It has many advantages like water retention abilities, bio-degradability, strength and durability, natural pH levels and air porosity. But its not free from drawbacks such as its cost, bio-security threats and high salt content.

For many years coir pith was considered as a waste product of the extraction process and was dumped outside of coir fibre mills, generating large environmental pollution issues of its own. It is only over one decade that the coir pith has been utilised most economical manner. It has variety of uses in manufacturing, construction and agriculture. In coastel areas its uses are great extend due to abundance of coconut trees.

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To manufacture coconut coir, the husks of coconuts are first harvested. Then, the husks are soaked in water for several days, during which time they are broken down and the fibers within them become more pliable. The husks are then beaten to separate the long, tough fibers from the short and soft fibers. The long fibers then dried and graded into brown or white fiber depending on the maturity of the coconut husk used. The short fibers are also dried and then spun into coir yarn or twine.

WHITE FIBER

White coir is harvested from unripe coconuts and is used for making finer brushes, string, rope and fishing nets.

BROWN FIBER

The brown fiber extracted from matured coconuts and it is usually more stiff. Brown fiber is used in products such as floor mats, doormats, brushes and mattresses, coir baskets, coir pots and plates, coir fiber discs and cushions, coir mattings for cricket pitches and coir pets.

VALUE OF COIR PITH

¹Global coir pith production estimated 3, 50, 000 metric tons annually. India and Srilanka alone produces 90% of total global production. About 6. 4 lakh persons get employment out of which 80% are women. In India large quantity of coir waste of about 7. 5 million tons is available per annum from coir industries. Total coconut production in India 22167. 45 million nuts every year. For every 10, 000 husks-1. 6 tones of coir pith obtained in India. And available coir pith-10 million tons every year. Exports from this industry are Rs:70/-crores per annum in India. Kerala, Tamilnadu, Karnataka, AP, Maharashtra, Goa and Orissa are the major coconut growing states in India and dominate accordingly in coir pith production.¹

²According to Times of India, data reveals that of the 9 lakh tonnes of coir produced in the country, nearly 7. 5 lakh tonnes are exported to China.²

USES OF COIR PITH

Jallikattu also known as ‘Eru Taluvutal’and Manchu-Virattu is a traditional event in which Indian bulls were released into a crowd of people and few participants were

attempt to grab the large hump on the bulls back with both arms and hang on to it while the bull attempt to escape. The coir pith is placed on the floors of the Jallikattu ground in order to avoid injuries of participants who hold the hump of the animals as long as possible. It is typically practiced in some regions of the Indian state of Tamilnadu in southern and western parts as a part of Pongal celebrations or harvesting festival, which will occurs annually in January.

It is recommended that 5 tons of composed coir pith per hectare of land irrespective of the raised and it improves the soil aggregation.

It is advised that composed coir pith should be applied basically before take up sowing. For nursery development in poly bags and in mud pots, while preparing the potting mixture 20% of composed coir pith can be mixed with the soil and sand before filling it in the poly bags or mud pot.

For applying to the established trees like coconut, mango, banana and other fruit bearing trees, minimum 5kg composed coir pith is required. Apart from that, the addition of composted coir dust improves soil nurture, structure and tilth, sand soil become more compact and clayey soil become more arable.

It improves the water holding capacity (more than 5 times its dry weight) contributing towards increased soil moisture. Composed coir dust contains all plant nutrient elements and it can provide a supplemental effect along with inorganic fertilizers.

The strength of concrete increases by the addition of coir fibre and cost of compressive and cost of forming concrete reduced by using it.

OBJECTIVES

1. To analyse the income levels and residents who are purchasing coir products in Chennai city.
2. To analyse the availability and nature of coir products purchased by the people.
3. To analyse the eco-friendly nature and alternative to coir products in the study area, and
4. To find out the various uses and dis-uses of coir products to the people.

DATA SOURCE AND METHODOLOGY

The present study is based on the both primary and secondary data. The secondary data is collected from the various journals, books, Dailies and internet. The primary data

is collected from the research instrument called 'Questionnaire'. . A well- structured questionnaire was used in this study to collect the primary data. Before, collecting the primary data the questionnaire is pre-tested. The sampling technique used in this analysis is convenience random sampling. This study is pertains to the perception of people using coir pith and coir mats. The number of sample population for this present study was 100. The size of the sample also fixed conveniently by taking into account the time and money constraints. After the data was collected it was organized and analysed. For analysing the questions statistical analysis was carried out by using different tools.

DATA ANALYSIS AND INTERPRETATIONS

Frequency Distribution of Demographic and study related variables

Table 1: Income Status of the Sample Respondents

<i>Income (per month)</i>	<i>Frequency</i>	<i>Percentage</i>
Below 25,000	20	20
25,000-35,000	22	22
35,000-45,000	18	18
Above 45,000	40	40
Total	100	100

Source: Primary data

The city of Chennai has different nationals who are residing and carry out their economic activities to earn income either as professionals or government officers. The above table 1 shows that monthly income of the sample respondents. The income of the people primarily determining the consumption pattern of the people in a particular period of time. Of the total sample majority 40 percent of their income above Rs.

Table 2: Country of Residence of the Respondents

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
India	53	53
Australia	6	6
United Kingdom	11	11
United States	27	27
China	3	3
Total	100	100

Source: Primary data

45000 per month, followed by 18 percent of their income between Rs: 35000-Rs. 45000 and 20% of their income less than Rs. 25000/per month. This shows that that all the sample population are earning reasonable significant income earning per month, because the prices of coir mats are higher than the cotton and plastics one.

The above table 2 shows that in which country the sample population belong to it. As the study relate to the people of India no wonder majority of them are native people alone. Of the total sample majority 53 percent of the sample population belong to India and using coir mats and coir pith for their daily life. Apart from that the city of Chennai is a home for people of different countries and has communication with rest of the world due its economic importance. Followed by 27 percent of them are belong to Australia and 11percent of them are belong to U. K. Only very meagre percentage of the population belong to other countries. This shows that majority of them are Indian nationals.

Table 3: Availability of Coir Products among the Respondents

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Very Rare	20	20
Optimum	26	26
Available	54	54
Total	100	100

Source: Primary data

The above table 3 shows that opinion on the availability of coir products among the sample respondents. Of the total sample majority 54% of them are sates that coir products are available to them, followed by 26% of them are states that availability of the coir products are optimum and only 20% of them are states that availability of the coir products are very rare. This shows that coir products are easily available to them.

Table 4: Different Coir Products Purchased By the Respondents

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Brushes	7	7
Mattress	33	33
Doormats	31	31
Garden Articles	14	14
Bags	6	6
Others	9	9
Total	100	100

Source: Primary data

The above table 4 shows that nature of the coir products purchased by the sample population in the study area. Of the total sample majority 33 percent of them purchased only mattress, followed by 31 percent of them are purchased doormats and only 14 percent of them are purchased garden articles. Remaining sample purchased their coir products consisting of bags, brushes and other coir products. This shows that majority of them are purchased mattress and doormats only and further shows that people are now using coir mattress for sleeping purposes unlike traditional products of palm trees yarn and cotton ropes.

Table 5: Consumer's Opinion About the Coir Product (Whether Eco-Friendly or Not)

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Agree	58	58
Strongly Agree	40	40
Disagree	0	0
Strongly Disagree	2	2
Total	100	100

Source: Primary data

The above table 5 shows that respondent's opinion about the nature of the coir products whether they are eco-friendly or not. In the study majority 58 percent of them are opinion that coir products are eco-friendly when compared to synthetic products and agreed the above statement, followed by 40 percent of them are strongly agreed the above statement. This shows that there is no doubt that coir products are highly eco-friendly in nature. Due to this reason that people are purchasing the coir products even though its prices are high when compared to its substitute products in the markets.

Table 6: Alternative to Coir Product Available in Market

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Plastic	6	6
Jute	69	69
Rubber	10	10
Fiber	15	15
Total	100	100

Source: Primary data

The above table 6 shows the respondent's alternative products or substitute products to coir products whenever there is non-availability of coir products in the

markets. In the study it is inferred that majority 69 percent of them are states that jute is the alternative one to the coir products, followed by 15 percent of them are states that fibre as the alternative one to coir products and 10 percent of them says that rubber as the alternative one to them whenever there is non-availability of coir products in the markets. The table further shows that majority of them are prefer natural fibre products rather than the synthetic one.

Table 7: Respondents View on the Advantages of Coir Products

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Tough and Durable	69	69
Easy to clean	22	22
Provides excellent insulation	9	9
Total	100	100

Source: Primary data

The above table 7 shows the various advantages faced by the sample respondents when using the coir products. Of the total sample majority 69 percent of them are states that due to it's tough and long lasting feature people are preferring to buy coir products for their daily usage. Followed by 22 percent of them are due it's easy to cleaning feature people preferred coir products when compared to other products in the markets. Only 9 percent of them are says that coir products are provide excellent insulation.

Table 8: Respondent's Opinion on the Dis-Advantages of Coir Products

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Does not contain nutrients	32	32
Hard to find	55	55
Contains high level of salt	13	13
Total	100	100

Source: Primary data

The above table 8 shows that respondent's opinion about not preferring coir products for their consumption or due to having disadvantages feature people not buying of the coir products. In the study it was found that 55 percent of them are reported that it was hard to find in the market when compared to synthetic products in the markets. It is due to having high price of the coir products or non-availability of products in the markets. Followed by 32 percent of them are says that it does not contain any nutrients. If it will contain nutrients then people may buy it for manuring their crops. Only 13 percent of them are says that it contain high level of salt.

Table 9: Purchase of Coir Products by the Respondents

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Retail stores	65	65
Wholesale	25	25
Online	10	10
Total	100	100

Source: Primary data

The above table 9 shows that where the respondents will find and purchase coir products in the markets. In the table it is inferred that 65 percent of them purchased their coir products in the retail outlets, because of availability in the majority of the super markets or big malls, followed by 25 percent of them are purchased in the wholesalers and only 10% of them are in online markets. In recent years the people prefer to buy even their groceries online mode only rather than offline, because of development and revolution in ICT technology and future market will be highly a digital oriented one.

Table 10: Coir Products Used for Gardening

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
Sand	31	31
Coir pith	69	69
Total	100	100

Source: Primary data

The above table 10 shows that how respondents using the coir products for gardening purpose. In the study it was found that 69 percent of them are using coir pith in place of sand for gardening and 31 percent of them are used sand for gardening purpose. This shows that coir pith is great use in agriculture, recreation and other fields.

Table 11: Respondents Rating on the Usage of Coir Pith for Gardening

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
1	3	3
2	7	7
3	23	23
4	35	35
5	32	32
Total	100	100

Source: Primary data

On a scale 1-5, how much would you rate using coir pith for gardening (1 being the lowest 5 being the highest)

The above table 11 shows that rating of respondents for using coir pith for gardening purpose. Of the total sample only 32 percent of them are given high rate and only 3 percent of them are given low rate, in between the two extreme points others are given only moderate rate.

Table 12: Respondent’s Rating on The Quality of Coir Mats

<i>Particulars</i>	<i>Frequency</i>	<i>Percentage</i>
1	4	4
2	6	6
3	29	29
4	34	34
5	27	27
Total	100	100

How would you rate the quality of coir mats? (On a scale 1-5, 1 being the lowest and 5 being the highest)

The above table 12 shows that rating given by the sample respondents about their coir mats while using the coir mats. Of the total sample 27 percent of them are given high rating and 4 percent of them are given low rating. Other are given the in between the two extreme rating.

CORRELATION COEFFICIENT

Null Hypothesis: There is no significant difference the usage of coir pith for gardening and the quality of coir mats.

Alternative Hypothesis: There is a significant difference between the usage of coir pith for gardening and the quality of coir mats.

Table 13: Correlations

		<i>Using coir pith for gardening.</i>	<i>Quality of coir mats</i>
Using coir pith for gardening.	Pearson Correlation	1	.611**
	Sig. (2-tailed)		0.000
	N		70

Quality of coir mats	Pearson Correlation	-	1
	Sig. (2-tailed)	-	
	N	-	
**. Correlation is significant at the 0. 01 level (2-tailed).			

INTERPRETATION

The Correlation Coefficient between the usage of coir pith forgardening and the usage of coir mats comment with 0. 611. There is $0.611^2 = 0.3737\%$ positive correlation exist between the usage of coir pith and coir mats by the sample population in the study area. This table 13 shows that people aware of its significance in their daily life.

CONCLUSION

Coir pith is by-product of the coir industry which is used for many purposes by the people. Originally, its importance is unknown to the people and over one decade ago only people came to know about its significance. Eventhough, Govt set up coir board in 1953 to promote the industry. As on 31st march 2015, there are 15235 industries /units registered with coir board. Most of the industries are located only two main states like kerala and Tamilnadu. Out of the total units, seven units are public sector units, kerala accounts for 57. 85 percent and Tamilnadu account for 25. 83 percent of total share. The Govt should take initiatives to popularize value added coir products and emphasize on innovations on use of coir products especially in sectors such as construction, agriculture and coir wood. The Govt should give fiscal measures to coir industries in order to develop them.

REFERENCE

1. The Hindu daily August 16, 2020
2. The Times of India, January 17, 2022