SJIF Impact Factor 2022: 8.197| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 7 | Issue: 9 | September 2022 - Peer Reviewed Journal

CONSUMER BEHAVIOUR ANALYSIS: SUSTAINABLE FOOD WRAPPING WITH BEESWAX

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ABSTRACT

Modern food wrapping makes food safe, dependable, shelf-stable, and hygienic. However, the majority of food wrapping is single-use and cannot be re-used. Single-use food wrapping has a huge environmental impact, from plastics in our waterways to harmful production by-products. A natural eco-friendly, sustainable alternative to plastic wraps is "Beeswax Food Wraps". Despite being eco-friendly and sustainable wrapping, consumers seldom use it. Although it's no secret that single-use food wraps are a hazard to our seas, ecosystems, and globe, even then, we find it difficult to break free from our non-eco-friendly habits. The present paper aims to analyse the consumer perception of green products. Furthermore, the study investigates consumers' level of satisfaction with the different types of food wraps and analyses the factors influencing the purchasing behaviour of beeswax food wraps among consumers. A structured questionnaire was used to collect the primary data, which was then analysed using the Chi-Square Test of Independence, One-Way ANOVA test, Spearman Rank-Order Correlation Coefficient and descriptive statistics. The results reveal an important insight concerning the behaviour of consumers towards Beeswax Food Wraps and green product purchase. The study found that in spite of consumers growing awareness of green products and environmentally harmful practices, Beeswax Food Wraps still have a long way to go.

KEYWORDS - *Beeswax Food Wraps, Green Product, Green Consumption, Plastic Wraps, Aluminium Foil, Sustainable Wrapping, Consumer Behaviour.*

INTRODUCTION

Food packaging is fundamental to the food industry, and without it, the food industry would not be able to survive, and consumers would not be able to operate. Food chains today are distinguished by their broad geographical distribution as well as worldwide value networks. Plastic and aluminium food wrapping has massive economic benefits among various wrapping materials available. Since time immemorial, people have depended on plastic and aluminium due to their low-cost, versatility, durability and high strength-to-weight ratio. Apart from being highly demanding, these food wrappers pose many threats to the environment.

The environmental impact of single-use food wrapping is enormous. Most food wrappings are meant to be used once and then discarded rather than reused or recycled, and it makes up almost half of all municipal solid waste. The majority of food wrapping is wasted and is either buried in a landfill or becomes trash that is swept into the environment by water and wind flow. Plastic and aluminium food wrapping contains certain chemicals that prove harmful to the human body. These chemicals attach themselves to the food surface and enter the human body causing chronic ailments like cancer, heart failure and dysfunction of body organs. Due to their unrestricted use, microplastic is found in 77% of human beings causing damage to body cells. Thus, the ease of food wrapping is overshadowed by the harmful effects and waste generated by plastic wrapping.

Non-biodegradable food wrapping must be substituted with environmentally friendly packaging. Sustainable food wrapping has been a popular topic among consumers and marketers, and it is also in line with rising consumer understanding of environmental sustainability.

The present study aims to analyse the significance of sustainable beeswax food wraps and consumer behaviour regarding green consumption.

Made from the concept of green wrapping, the natural alternative for plastic and aluminium wraps is "Beeswax Food Wraps". Beeswax food wraps are a more environmentally conscious, food-safe, and sustainable solution to plastic and aluminium food wraps: wrap sandwiches, rotis, idlis, raw fruits and vegetables, or paneer in them. Made from GOTS (The Global Organic

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Textile Standard) certified organic cotton fabric printed with herbal dyes, pure natural unbleached beeswax, organic cold-pressed coconut oil, and natural tree dammar gum, these wraps are sustainable, reusable and biodegradable. Beeswax has an anti-microbial effect on food, which protects food from spoilage. Beeswax wrappers are breathable, so they keep your food fresh for a long time. Plastic, on the other hand, promotes mould growth.

Beeswax food wraps in India are manufactured by various small scale industries. The firms are working to make the world a greener place by offering beeswax wraps, which are handcrafted food storage wraps that may successfully replace non-biodegradable wraps. Due to a lack of consumer awareness and high costs, beeswax food wraps are not so popular among people. To promote the product and alter consumer perceptions, consumer awareness is a must.

CONCEPTS AND REVIEW OF LITERATURE

This section discusses the concepts and the related literature. The discussion is divided into three sections - Green Consumption Behaviour, Green Product and Beeswax Wrap.

Green Consumption Behaviour

Green Consumption is a problematic concept, not least because it is a visible oxymoron. Green means conservation of natural resources, while consumption usually involves destroying them. Green Consumption is also disputed as a theory, relying heavily on context as a set of processes, as well as complexity and has many aspects in both theory and practice. Green might be assumed to relate only to environmental issues, but these are subtly intertwined with the social and economic strands of sustainable development. (1)

Research conducted by Bhatia and Jain (2013) highlights consumers' perceptions and preferences about green marketing processes and products with the help of a structured questionnaire. The results of the analysis revealed a high level of awareness about green marketing practices and products among the consumers. Green values were also found to be high among the respondents. It also revealed that the view that overall green values, awareness about green products and practices and the perception regarding the seriousness of marketing companies towards green marketing had a positive significant impact on consumer persuasion to buy and prefer green products over conventional products. (2)

Cost is an important barrier to consumption, especially switching to renewable energy. It is also often why people do not buy sustainable products; they may want to, but they may not be able to afford them. Across the statistical boards, the biggest obstacle to adopting consumer behaviour based on stability is negligence. Between 1 of 10 and 1 of 3 agree with this statement - and that suggests that brands need to do more to communicate with consumers. (3)

Bhatia and Jain in their research paper also stated that “Consumers were strongly agreeing with the importance of green marketing practices.” But contradicting this they also included that consumers felt that green products are priced higher than conventional products. When asked about the factors that affect the purchase of green products, consumers rated “awareness about green products” first with a mean score of 4.31, followed by “availability of green products”, and “product price” in second and third position. This implies that marketers have to extensively market and communicate the availability of green products to the consumers. (4)

Green Products

A green product is a sustainable product designed to minimise its environmental impacts during its whole life cycle and even after it's of no use. Green products are usually identified by having two primary goals – reducing waste and maximising resource efficiency. They are manufactured using toxic-free ingredients and environmentally-friendly procedures and achieve certifications such as GreenPro, Environmental Product Declaration (EPD), Life Cycle Analysis (LCA), etc. (5)

Green products have many advantages; some of them include being energy efficient, durable and often have low maintenance requirements. They are free of ozone-depleting chemicals and toxic compounds and don’t produce toxic by-products. They are often made of recycled materials or content or renewable and sustainable sources. They are usually obtained from local manufacturers or resources and are biodegradable or easily reused either in part or as a whole. (6)

A company named Nielsen in 2015 in their report explained the scope of green products in the future. In this report, they revealed that about 3 out of 4 “millennials“ claim that they are willing to pay more money for sustainable offerings. The younger group, i.e about 15-20, said that they would choose product A instead of product B if the company producing A would be “committed to positive social and environmental impact”. (7)

Salman Shamsi and Zainus Siddiqui in their research paper on Green product and consumer Behaviour, concluded that “Consumers mainly refrain from using green products due to their unavailability as well as unawareness about such products. However, 31.2% of the respondents feel that the cost of installation/usage of green products is higher than regular products of the same category” Along with this, they found that there are many other factors that motivates consumers to buy green product “It is clearly seen that environment sustainability is the most effective factor followed by personal consciousness of the respondents that persuaded them to buy a green product.” (8)

According to the analysis in “Environmental strategies and green product development: an overview on sustainability-driven companies” research paper it was seen that “The percentage of green product developers exceeds the percentage of green product non-developers. The same result is obtained in almost all sectors, except for the ‘healthcare’ and the ‘consumer’ sectors.”

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Furthermore, the shares of green product developers and non-developers do not show significant differences among geographical areas, meaning that there is no geographical area more oriented to the green product development than the other areas. (9)

Beeswax Wrap

Beeswax is a substance that creates the structure of a honeycomb; bees extract wax to form honeycombs where they can store honey. Thanks to its rich hydrophobic properties, beeswax is actually present in cosmetics and body products. Also, beeswax is used in the food industry: as a wrapping film to ripen or as a food additive and to give light to products. Similar to the honey it contains, beeswax has also been shown to have several medicinal properties, such as healing scratches, inflammation, and burns. (10)

The main focus of our research is Beeswax Wraps. They are the wraps made from organic cotton coated with beeswax, organic jojoba oil and tree resin; beeswax wrap is an alternative natural food wrap with antibacterial properties and can be used as the lid to cover bowls or plates of food or to wrap fruit, vegetables, bread, cheese, herbs, baked goods and other food products, for on-the-go convenience. (11)

Beeswax wraps have many pros which can attract a customer. Beeswax wraps are breathable, which keeps your food fresher for longer, unlike plastic which accelerates mould growth. Beeswax wraps are easily cleaned with cold water and mild detergent and can be left to drip dry. Proper care will allow them to last for up to 1 year. Switching from single-use plastic to reusable Beeswax Food Wraps that are compostable and biodegradable, is a neat way to reduce household waste while helping the planet. (12)

A research paper from University of Montana states that Beeswax wrap in the coming year will become popular due to the benefits it possesses. According to this, "Manufacturers of beeswax wraps promote their products as being superior to traditional wrapping materials by providing both a physical barrier and a potential antimicrobial effect." This gives an optimistic view that Beeswax wraps can dominate the market in the near future and hence the demand for beeswax wrap can increase leading to fall in its prices. (13)

Another research project stated that there is a high level of dissatisfaction amongst the consumer when it comes to the use of aluminium foil, this can give way to beeswax wrap to make an entrance in the market. The only problem that comes in the way is the lack of awareness about the existence of this product and the benefit it provides. Due to the lesser demand in the market the prices of beeswax wrap is relatively more leading to increase in prices which in fact becomes another reason for consumers to not prefer beeswax wrap. (14)

OBJECTIVES

The present study was undertaken with the following objectives:

- To know consumers' buying behaviour towards reusable beeswax wraps.
- To understand the satisfaction level of consumers towards the food wraps they use.
- To recognise the factors motivating and demotivating the purchase of beeswax wraps.
- To identify the factors that will help accelerate the demand for beeswax wraps.

HYPOTHESIS

The following hypotheses were drawn for the purpose of the study:

H_{01} - There is no significant relationship between green product purchase and the gender of the respondents.

H_{02} - The positive attributes of green products do not affect consumer perception.

H_{03} - There is no significant difference between the highest motivating factor for purchasing beeswax food wraps and the age of the respondents.

H_{04} - There is no correlation between the usage of beeswax food wraps and the purchase price of it.

RESEARCH METHODOLOGY

The research design used for the study is a descriptive design that emphasises on identifying the various factors affecting consumers' purchasing behaviour concerning reusable beeswax food wraps and green products. The methodology adopted for the research paper is that of a mixed research method where both quantitative and qualitative techniques are used to understand and analyse the research problem.

Research Approach

The present study is an academic paper based on primary data collected through a sampling method and an interview. It involves an intensive discussion with an industry expert and the CEO of Brown Living India. A well-structured sample of 252 respondents from diverse demographic regions was collected. This survey was conducted online through Google Forms. Newspaper articles and relevant websites constituted the secondary data sources.

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Method of Analysis

The methods used for the analysis of the data collected include the Chi-Square Test of Independence, One-Way ANOVA test, Spearman Rank-Order Correlation Coefficient and descriptive statistics.

RESULTS

A. Outcome of Structured Interview

According to Brown Living India's CEO, excessive exposure to plastic in her workplace prompted her to search for alternatives to plastic in everyday life, in turn inspiring her to start her own company. She mentioned that beeswax wraps caught her eye because of their volatile properties and reusability.

In response to a question regarding the current state of environmental awareness among people, she pointed out that although awareness is growing among many, there is still a significant distance to cover due to the lack of availability and knowledge of green products.

In respect to the availability of beeswax wraps, she acknowledged that many green products are not readily available to consumers primarily due to their inaccessibility in physical stores, which again contributes to the inability to change consumer behavior. While recapitulating the reasons, it was interpreted that these products are not available in physical stores because high manufacturing costs damage the firms' costing systems.

Furthermore, she asserted that the price of green/eco-friendly products will tend to decline as more buyers and sellers seek out these products. In other words, as more products become available, they will become less expensive. Therefore, she appeared optimistic that green products will be more readily available in physical stores within 3-4 years, despite the current trends.

Another equally important issue raised by her was the high price of green products. On average plastic and aluminium foils are quite cheaper than beeswax wraps which can be reused 100 times, indicating how the product price as compared to product quality plays a vital role in shaping consumer behaviour.

As we discussed the challenges that the manufacturers of beeswax wraps face due to lack of awareness of the product, it became apparent that this problem is more like a chicken and egg dilemma since manufacturers must decide whether to increase supply while demand is low or wait for demand to rise before increasing supply.

Towards the end of the interview, the interviewee threw some light on how habits can be changed only if they are called out. Thus, it is crucial to resonate with consumers in order to change their behaviour.

As a whole, the interview assisted us in identifying the reasons for current sales trends of beeswax food wraps and provided an opportunity to discuss their future.

B. Analysis of Data and Hypothesis Testing

H_{01} - There is no significant relationship between green product purchase and the gender of the respondents.

Table 1

Results of the Chi-square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.142	5	.033
Likelihood Ratio	12.576	5	.028
Linear-by-Linear Association	.063	1	.802
N of Valid Cases	252		

Interpretation: Table 1 shows that the significance of chi-square is 0.033, which is less than 0.05 (5%). So, the null hypothesis cannot be accepted at a 5% significance level, concluding that there is a significant relationship between green product purchase and the gender of the respondents.

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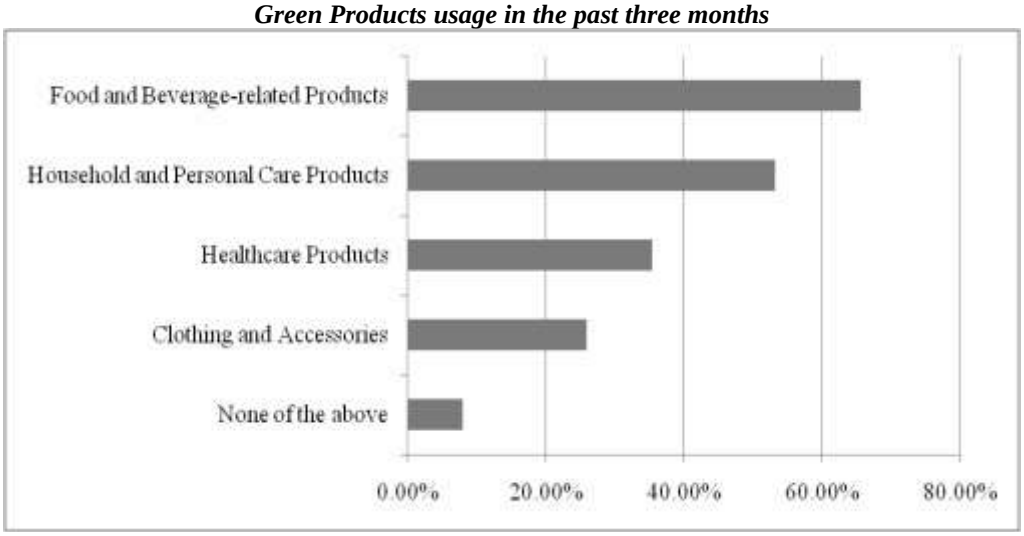
Figure 1
Green Products usage in the past three months



Interpretation: The chart shows the different types of green products people used in the past three months.
Evidently, food and beverage products are the most commonly consumed green products, followed by household and personal care products.
Consumption patterns indicate that consumers are health conscious and prefer to purchase a variety of eatables and personal care products.

H_{02} - The positive attributes of green products have does not affect consumer perception.

Table 2
Likert Scale Analysis Using Mean (in percentage)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
Good for the Environment	73.4	23.0	3.2	.4	0	1.3
Are Healthy	52.4	38.5	8.7	.4	0	1.57
Good Quality	35.3	41.7	21.0	2.0	0	1.89
Reasonable Price	8.3	18.7	37.7	30.6	4.8	3.04
Are Well-promoted	10.3	22.6	39.3	24.2	3.6	2.88
Are Easily Accessible	7.9	23.4	38.5	26.2	4.0	2.94
						2.27

Interpretation: The results of this survey indicate that respondents have a slightly positive attitude toward green and eco-friendly products. Therefore, the null hypothesis has been rejected.

Table 3
Ranking of Challenges Faced

	Frequency	Percentage	Ranking
High cost	171	67.9	1
Lack of trust	65	25.8	5
Difficult to change habits	72	28.6	4
Not enough awareness	89	35.3	3
Not easily available	132	52.4	2

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Interpretation: Most consumers perceive green products to be expensive and unavailable to purchase, which discourages them from purchasing them. Moreover, some consumers believe that unawareness, lack of trust, and difficulty in changing one's habits are also demotivating factors that influence their purchasing decisions.

Table 4
Satisfaction Level of Food Wraps used by Consumers

	Satisfaction Level
Plastic Wrap	87.09
Tissue Paper	83.51
Beeswax Wrap	76.92
Parchment Paper	72.41
Aluminium Foil	60.22

Interpretation: Study results show that people are the least satisfied with aluminium foils even though it is the most used food wrap as compared to beeswax wraps which are the least used.

H_{03} - There is no significant difference between the highest motivating factor for purchasing beeswax food wraps and the age of the respondents.

Table 5
Results of one-way ANOVA test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.910	2	5.455	5.685	.004
Within Groups	238.943	249	.960		
Total	249.853	251			

Interpretation: Table 5 shows that the significance of one way ANOVA test is 0.04, which is less than 0.05 (5%). So, the null hypothesis cannot be accepted at 5% significance level, concluding that there is a significant difference between the highest motivating factor of purchasing and the age of the respondents.

H_{04} - There is no correlation between the usage of beeswax food wraps and the purchase price of it.

Table 6
Correlation Coefficient

		Beeswax Food Wraps Usage	Purchase Price of Beeswax Food Wraps
Beeswax Food Wraps Usage	Correlation Coefficient	1.000	-.055
	Sig. (2-tailed)	.	.388
	N	252	252
Purchase Price of Beeswax Food Wraps	Correlation Coefficient	-.055	1.000
	Sig. (2-tailed)	.388	.
	N	252	252

Interpretation: The usage of beeswax food wraps and their purchase price is negatively correlated with the correlation coefficient of -0.55. This indicates that consumers may be more inclined to use it if the purchase price is less and vice-versa.

CONCLUSION

Beeswax wraps retain a relatively low market share, despite consumer's growing interest in environmental concerns and green products. As a result, understanding the reasons for consumer's behaviour regarding beeswax wrap purchases becomes necessary. From the responses collected, it was determined that unavailability of such products in physical stores, lack of trust,

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unawareness, and difficulty changing one's habits are few major factors that refrain consumers from using these products. Consumers tend to be driven by value, often measuring the benefits and utility they gain from buying products. The above findings suggest that consumers become more willing to purchase green products when they recognize the value they provide to both themselves and the environment. To this end, enterprises should strive to increase Beeswax Wraps' perceived green value as much as possible.

The present study results can be used by marketers, manufacturers, and the government to promote beeswax food wraps proficiently. The lack of awareness and unavailability of sustainable food wraps should be checked upon to remove the impediment to their usage. Advertisements and promotional activities focusing on the environment can motivate green product purchase and usage. Moreover, the personal consciousness of consumers must be given due consideration. Awareness programs about environmental degradation due to plastic packaging and the benefits of sustainable food wrapping can be launched to help consumers become conscious of their actions.

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