



A Study on Export Performance and Market Potential of Indian Biodegradable Sanitary Pads in the European Union Market

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How to Cite this Article:

E, S. (2026). A Study on Export Performance and Market Potential of Indian Biodegradable Sanitary Pads in the European Union Market. International Journal of Creative and Open Research in Engineering and Management, <i>02</i>(05).
<https://doi.org/10.55041/ijcope.v2i4.1040>

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<https://doi.org/10.55041/ijcope.v2i4.1040>

ABSTRACT

This study examines the export performance and market potential of Indian biodegradable sanitary pads in the European Union (EU) market. With increasing global awareness about environmental sustainability, the demand for eco-friendly menstrual hygiene products has grown significantly. The study analyses export trends, growth rates, and major importing countries in the EU using secondary data for the period 2021–2026. Statistical tools such as CAGR, trend analysis, percentage analysis, and correlation are used to evaluate export performance. The findings indicate that countries like France and Germany are the major importers, showing strong growth potential for Indian products. The study concludes that India has significant opportunities to expand its presence in the EU market due to rising demand for sustainable products, though challenges such as high production costs and strict regulations remain.

Key words: Biodegradable pads - eco-friendly – European union – pollution – sustainable.



INTRODUCTION

The global demand for sustainable and eco-friendly products has been steadily increasing across industries, and menstrual hygiene products. Conventional sanitary pads are largely non-biodegradable, contributing significantly to environmental pollution owing to their long decomposition period. Biodegradable sanitary pads, made from natural or eco-friendly materials, offer a sustainable alternative that aligns with the growing environmental consciousness of consumers worldwide.

India has emerged as a key producer of sanitary products, including biodegradable pads, driven by advances in manufacturing capabilities and a growing focus on sustainable products. Simultaneously the European Union (EU) represents a high-potential market due to its environmentally aware consumer base, strict sustainability standards, and growing demand for eco-friendly menstrual hygiene products.

The European Union has been actively promoting environmentally sustainable products through strict environmental policies and initiatives aimed at reducing plastic waste. Consumers in many EU countries are becoming more conscious of the environmental impact of personal hygiene products and are increasingly shifting towards biodegradable alternatives. This trend has opened new opportunities for exporters from developing countries like India to supply eco-friendly sanitary products to the European market.

In this context, analysing the export performance and market potential of Indian biodegradable sanitary pads in the European Union becomes important. Understanding export trends, growth rates, and the major importing countries within the EU can help identify the opportunities and challenges for Indian exporters. It also provides insights into the future scope for expanding India's presence in the European market for biodegradable sanitary hygiene products.

This study focuses on evaluating the export performance of Indian biodegradable sanitary pads, examining export trends and growth, identifying the major EU importing countries, and assessing the market potential in the European Union. By analyzing these aspects using secondary data, this study aims to provide actionable insights into India's position and opportunities in the EU market.

REVIEW OF LITERATURE

Julie Hennegan and her colleagues (2021) in their study "Menstrual Health: A Definition for Policy, Practice, and Research" published in *Sexual and Reproductive Health Matters* provided a comprehensive framework defining menstrual health as a multidimensional concept including access to safe, hygienic and affordable menstrual products. The study emphasized that menstrual health is not limited to product usage but also includes education, sanitation infrastructure and social acceptance. The findings highlighted the growing importance of sustainable menstrual products, especially biodegradable sanitary pads, due to increasing environmental concerns associated with plastic-based products.

Julie Hennegan and her colleagues (2022) analysed "Measurement tools and indicators used in menstrual health research". The study emphasized the importance of developing standardized methods to assess menstrual



hygiene practices and product usage. The findings indicated that there is growing recognition of sustainable menstrual products and their role in improving environmental outcomes. The researchers highlighted that future research should focus on integrating sustainability into menstrual health programs. However, the study did not examine commercial or trade aspects related to biodegradable sanitary products.

Julie Hennegan and her colleagues (2023) conducted a study on “Global menstrual health indicators and trends”. The research highlighted the increasing importance of menstrual hygiene management as a public health and social issue. The study found that awareness regarding menstrual health has improved significantly across different regions, leading to increased demand for hygienic and sustainable products. The researchers emphasized that eco-friendly menstrual products are gaining popularity due to growing environmental concerns. However, the study mainly focused on health indicators and policy frameworks and did not examine export performance or market potential in international contexts.

Julie Hennegan and her colleagues (2024) studied “Recent trends in menstrual health and sustainability”. The research highlighted the increasing global demand for eco-friendly menstrual products, particularly biodegradable sanitary pads. The study emphasized that environmental awareness among consumers is driving the adoption of sustainable products. The findings indicated that biodegradable sanitary products are gaining acceptance in developed markets. However, the study did not specifically analyse export performance or market potential for Indian products in international markets.

RESEARCH GAP

Most of the existing studies on biodegradable sanitary pads mainly focus on menstrual health, environmental impact, consumer awareness, and product development. Several researchers have highlighted the importance of sustainable menstrual hygiene products and the growing demand for eco-friendly alternatives. However, these studies are largely limited to health, social, and environmental perspectives. Only a few studies discuss consumer behavior and production challenges, and even those do not provide detailed insights into international trade or export performance.

STATEMENT OF THE PROBLEM

The growing global demand for sustainable menstrual hygiene products has created export opportunities for Indian biodegradable sanitary pad manufacturers, especially in the European Union (EU), where environmental standards are stringent. A structured analysis of export growth, country-wise demand, and India’s market share in the EU during 2021–2026 is essential to assess performance and identify expansion opportunities. Therefore this study examines export trends, major importing EU countries. And overall market potential to evaluate India’s current status and future expansion prospects.



SCOPE OF THE STUDY

This study investigates the export performance and market potential of Indian biodegradable sanitary pads in the European Union during the period 2021–2026, based exclusively on secondary trade data. It quantitatively analyses export value, volume, annual growth rate, and trend patterns to assess performance dynamics over time. The study identifies the principal EU importing countries and evaluates their relative contribution to India's total exports in this product segment. Further, it assesses market potential by examining EU import trends, sustainability-driven demand shifts, and competitive positioning within the biodegradable hygiene products category. The analysis aims to generate evidence-based insights to support strategic export expansion and enhance India's competitiveness in the EU market.

OBJECTIVES

- To evaluate the export performance of Indian biodegradable sanitary pads in the European Union.
- To examine the trend and growth rate of Indian exports of biodegradable sanitary pads to the European Union.
- To identify the major European Union countries importing biodegradable sanitary pads from India.
- To assess the market potential and growth opportunities for Indian biodegradable sanitary pads in the EU.

LIMITATIONS

- This study relies primarily on secondary data obtained from government publications, export databases, journals, and credible online sources. Therefore, the reliability and accuracy of the data depend on the authenticity of these sources.
- A key limitation is the availability of specific data related to biodegradable sanitary pads, as export data is sometimes categorized under broader product classifications. This may limit the precision of the analysis. Additionally, the study focuses only on the European Union market and may not reflect export performance in other international markets. The study examines export data for the selected study period.
- Certain qualitative factors such as consumer preferences, regulatory changes, environmental policies, and market competition in the European Union may influence the market potential.



1. PERCENTAGE ANALYSIS

4.1 VALUE OF EXPORT PERFORMANCE OF INDIAN BIODEGRADABLE SANITARY PADS DURING 2025-2026

➤ **Percentage Analysis** - Percentage analysis is the method to represent raw streams of data as a percentage (a part in 100 - percent) for better understanding of collected data.

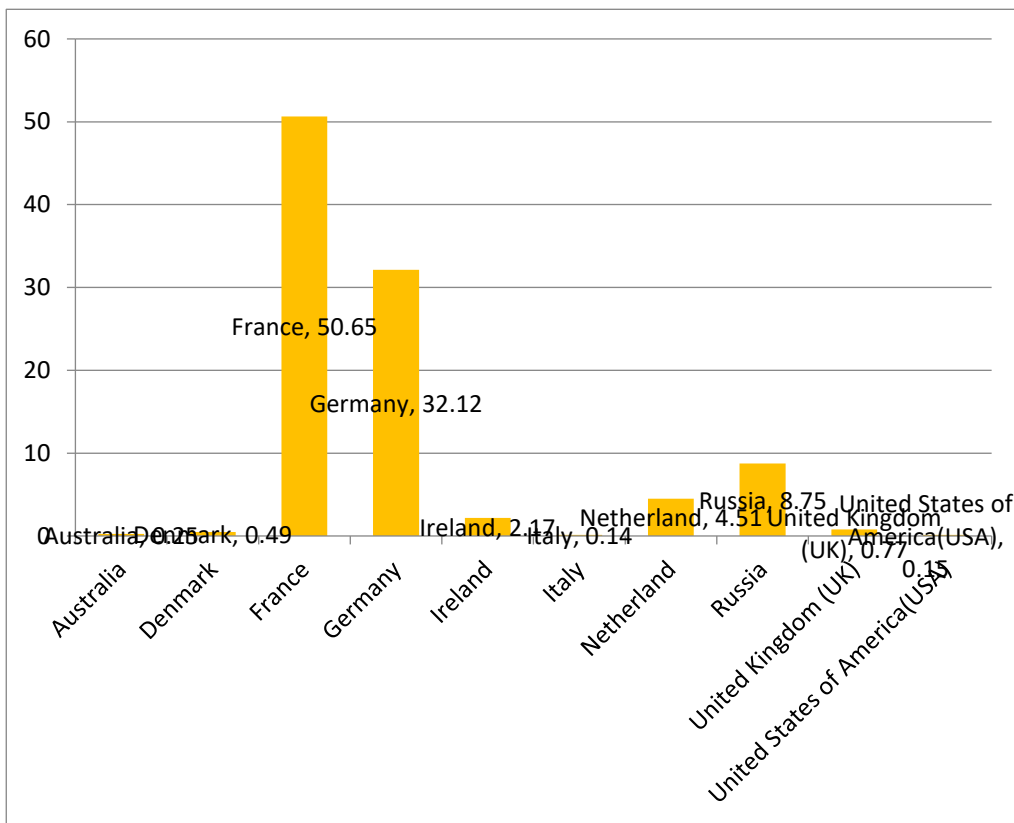
COUNTRY	VALUE OF EXPORT(INR)	PERCENTAGE
Australia	1008877	0.25
Denmark	2145730	0.49
France	222602264	50.65
Germany	141256425	32.12
Ireland	9553556	2.17
Italy	623476	0.14
Netherland	19809488	4.51
Russia	38458973	8.75
United Kingdom (UK)	3383389	0.77
United States of America (USA)	678141	0.15
TOTAL	439520319	100

INTERPRETATION:

The above table shows the year wise analysis for the year 2025-2026. It is seen that in 2025-26 the most of the revenue were earned from France and Germany and very less revenue were earned from Australia, Denmark, USA, UK and Italy.



4.1 VALUE OF EXPORT PERFORMANCE OF INDIAN BIODEGRADABLE SANITARY PADS DURING 2025-2026



2. CORRELATION ANALYSIS

4.2 CORRELATION COEFFICIENT

YEAR	COMPANY'S EXPORTS(INR) X	INDUSTRY'S EXPORTS (RUPEES IN MILLIONS) Y
2021-2022	173900465	138439.21
2022-2023	141367778	142863.01
2023-2024	304291062	165551.27
2024-2025	359794002	161353.39
2025-2026	439520319	175181.91
TOTAL	1418873626	783388.79

Formulae: $r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}$; where $x = [x-x]$, $y = [y-y]$

$r = 0.948583$

INTERPRETATION:

The best way to interpret the value of r is to square it to calculate r^2 . Statisticians call this quantity the coefficient of determination, but scientists call it r squared. It has a value that ranges from zero to one, and is the fraction of the variance in the two variables that is shared. Here if $r=0.92$ and r^2 is 0.89, then 89% of the



variance in Company's exports can be explained by variation in Industry's exports. More simply, 89% of the variance is shared between company's and industry's exports. Here it is seen that both the company's and industry's exports are positively correlated.

3. COMPOUND ANNUAL GROWTH RATE (CAGR)

4.3 COMPOUND ANNUAL GROWTH RATE (CAGR) ANALYSIS

FRANCE

➤ **Compound Annual Growth Rate - Compound annual growth rate (CAGR)** is a business and investing specific term for the smoothed annualized gain of an investment over a given time period. CAGR is often used to describe the growth over a period of time of some element of the business, for example revenue, units delivered, registered users, etc.

YEAR	REVENUE EARNED(INR)
2021-2022	20045514
2022-2023	56835389
2023-2024	155857991
2024-2025	195565432
2025-2026	222602264

CAGR:

$$= \frac{\text{End value}}{\text{Start value}}^{\frac{1}{\text{Periods}}} - 1$$

$$= \frac{222602264}{20045514}^{\frac{1}{5}} - 1$$

$$= 0.6185$$

$$= 61.85\%$$

INTERPRETATION:

The above table shows the revenue earned out of exports to France. Compound annual growth rate is 61.85% which implies a very high growth rate.

4. TREND ANALYSIS

4.4 TREND ANALYSIS OF INDIAN BIODEGRADABLE SANITARY PADS EXPORT TO FRANCE

FOR THE YEAR 2021-2026

S.NO	YEAR	QUANTITY
1	2021-2022	80692.2
2	2022-2023	95177.2
3	2023-2024	10966.2



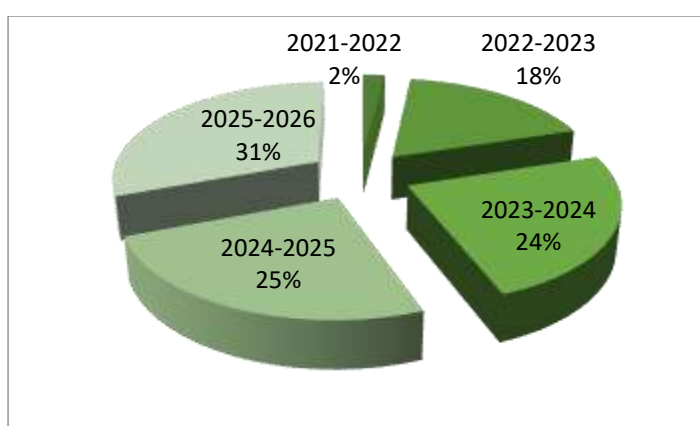
4	2024-2025	124147.2
5	2025-2026	138632.2

INTERPRETATION:

While projecting the trend line for the exports of Indian biodegradable sanitary pads, it shows a positive trend and hence the quantity of exports will have a rise in exports. But the exports in 2028-2029 will be low and then in coming years it will rise.

4.4 TREND ANALYSIS OF INDIAN BIODEGRADABLE SANITARY PADS EXPORT TO FRANCE

2021-2026



FINDINGS

- ❖ The company has exported most of its products during the year 2025-26 i.e. about 122142 pieces compared to previous years.
- ❖ The company has exported very few products on the year 2022-23 i.e. about 50335 pieces.
- ❖ The Country to which company had mostly exported is France and Germany during 2021-22.
- ❖ The company has earned high revenue in the year 2025-26. i.e Rs 43, 95, 20,319 /- as compared to previous years.
- ❖ The company has earned most of its revenue from France and Germany during 2021-22.
- ❖ Exports to USA were considerably high in 2021-22 which has come down gradually to a standstill in 2025-26 due to world recession and recession in US.
- ❖ The boom, depression and foreign exchange fluctuations have affected Indian biodegradable sanitary pads export to a great extent.
- ❖ Most of the European Union Countries during depression faced debt crisis which led to reduction in their imports and thereby affecting the company's exports.



- ❖ After depression i.e. 2023-24, it's found that most of the European Union Countries started importing from developing countries to reduce their costs.
- ❖ Exports to Italy and USA have come to a standstill.
- ❖ Trend Analysis shows that there is a positive trend in exports except for Italy and US which shows negative trend.
- ❖ Even though sales were fluctuating every year, company had good growth rate in revenues earned from all the countries except for USA.
- ❖ Company should reduce their cost of production to make their products more reasonable and attractive by obtaining raw materials from India instead of importing raw materials.
- ❖ Highest growth rate was for the revenues earned from Italy i.e.210.54%
- ❖ It is found that the company's contribution to the industry is very high as both the company's and industry's exports are positively correlated. About 86% of the variance is shared between company's and industry's exports.

SUGGESTIONS

- ❖ Company has yet to explore and tap some important Indian biodegradable sanitary pads markets such as Mexico and Hong Kong.
- ❖ Company should improve their promotional activities like going for better quality websites to withstand competition.
- ❖ Company should reduce their cost of production to make their products more reasonable and attractive by obtaining raw materials from India instead of importing raw materials.
- ❖ The study identifies the principal EU importing countries and evaluates their relative contribution to India's total exports in this product segment.
- ❖ Further, it assesses market potential by examining EU import trends, sustainability-driven demand shifts, and competitive positioning within the biodegradable hygiene products category.
- ❖ The analysis aims to generate evidence-based insights to support strategic export expansion and enhance India's competitiveness in the EU market.
- ❖ Consumers across the world are becoming more conscious about the harmful effects of plastic waste created by conventional sanitary pads.
- ❖ As a result, many people are choosing eco-friendly alternatives that are safer for both the environment and personal health.



CONCLUSION

This study was done to understand the export performance of Indian biodegradable sanitary pads (a division of AIL) during 2021-2026. With the help of tools used it was found that the projected value of exports to different countries indicates positive trend in future. Indian biodegradable sanitary pads contribution to the industry is very high as the demand for their products are high in international markets. As the Indian economy is growing consistently and it is said to be the second fastest growing economy behind China. There is a lot of scope for Indian biodegradable sanitary pads to make its presence felt around the globe with the help of modernised machinery, better research and innovations, quality productions and specialised designer executives from France and India.

WEBSITES

- <http://www.financialexpress.com>.
- <http://articles.economictimes.indiatimes.com>.
- <http://www.thehindubusinessline.in>.
- <http://www.Indian biodegradable sanitary padsindia.org>.

REFERENCE

1. Hennegan, J., Mahon, T., & Montgomery, P. (2021). Menstrual health: A definition for policy, practice, and research. *Sexual and Reproductive Health Matters*, 29(1), 1911618. <https://doi.org/10.1080/26410397.2021.1911618>.
2. Hennegan, J., Brooks, D., Schwab, K., & Melendez-Torres, G. (2022). Measurement in menstrual health research. *BMC Women's Health*, 22. <https://doi.org/10.1186/s12905-022-01622-5>.
3. Hennegan, J., Shannon, A., Rubli, J., et al. (2023). Global menstrual health indicators. *PLOS Medicine*, 20(6). <https://doi.org/10.1371/journal.pmed.1004215>.
4. Hennegan, J., et al. (2024). Menstrual health and sustainability trends. *BMC Public Health*, 24(1). <https://doi.org/10.1186/s12889-024-15021-3>.