

**ANALYSIS OF FACTORS INFLUENCING CONSUMER BEHAVIOR AND
PURCHASING DECISIONS IN THE MEDICINAL PLANT PRODUCTS MARKET**

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Abstract. This article examines the main factors influencing consumer behavior and purchasing decisions in the medicinal plant products market. Based on the results of a survey conducted among residents of Surkhandarya region, consumers' attitudes toward medicinal plant products, purchasing habits, and the factors affecting their choices were analyzed. The study employed economic-statistical methods, comparative analysis, and factor analysis. The results of the factor analysis revealed that product quality, certification level, packaging quality, information availability, marketing activities, and price significantly influence consumers' purchasing decisions. The findings demonstrate that product reliability and market information are the most influential factors in shaping purchasing decisions. Furthermore, practical recommendations were developed to enhance consumer trust, improve marketing activities, and promote the development of digital sales channels in the medicinal plant products market.

Keywords: medicinal plants, consumer behavior, purchasing decision, factor analysis, marketing, product quality, certification, digital commerce, consumer market, STATA 17.

Introduction

In recent years, the global market for medicinal plants and products derived from them has experienced rapid growth due to increasing public awareness of health promotion, disease prevention, and the growing demand for environmentally friendly products. According to the World Health Organization (WHO), a significant proportion of the world's population relies on plant-based products as a primary source of healthcare. This trend indicates that the demand for medicinal plant products continues to increase steadily not only in developing countries but also in developed economies. Furthermore, consumers' growing preference for healthy lifestyles, natural remedies, and environmentally safe products has become one of the key drivers of market expansion [1].

In the Republic of Uzbekistan, large-scale reforms have also been implemented to promote the cultivation, processing, and export of medicinal plants. The country's favorable climatic conditions, rich biodiversity, and abundant medicinal plant resources provide substantial opportunities to enhance the economic potential of this sector. As a result, the area devoted to medicinal plant cultivation has expanded, the number of processing enterprises has increased, and the range of products available in both domestic and international markets has broadened significantly [2].

However, the sustainable development of the medicinal plant products market depends not only on increasing production volumes but also on a thorough understanding of consumer needs and purchasing behavior. In modern market conditions, consumer purchasing decisions are shaped by a complex interaction of economic, social, psychological, and marketing factors. In particular, product quality, price, natural origin, safety, manufacturer reputation, advertising activities, packaging quality, and recommendations from other consumers all have a significant influence on purchasing decisions [3]. Therefore, identifying and evaluating the impact of these factors is essential for developing effective marketing strategies in the medicinal plant products market.

The study of consumer behavior represents one of the most important areas of marketing theory, as it enables businesses to align their activities with market demand through an understanding of consumer needs, motivations, and purchasing habits. This is particularly

relevant in the market for health-related products such as medicinal plant products, where consumer decision-making processes tend to be more complex than those associated with conventional consumer goods. In this context, trust, safety, and perceived product effectiveness play a crucial role in shaping consumer choices [4].

From this perspective, investigating consumer behavior in the medicinal plant products market, identifying the key factors influencing purchasing decisions, and assessing their role in market development possess significant scientific and practical relevance. The primary objective of this study is to identify and evaluate the factors that shape consumer purchasing decisions regarding medicinal plant products. The findings are expected to contribute to the improvement of consumer-oriented marketing strategies, provide a deeper understanding of market demand, and enhance the overall efficiency of medicinal plant product sales for producers and distributors.

Literature Review

The study of consumer behavior is considered one of the most important areas of modern marketing theory. In a market economy, the success of enterprises is determined not only by production volume or product quality but also by their ability to understand consumer needs and develop appropriate marketing strategies. Therefore, consumer behavior has been extensively examined by both international and domestic scholars.

One of the founders of modern marketing theory, Philip Kotler, emphasizes that consumer purchasing decisions are shaped by cultural, social, personal, and psychological factors. According to Kotler, the consumer decision-making process consists of several stages, including problem recognition, information search, evaluation of alternatives, purchase, and post-purchase evaluation, each of which is influenced by various factors [5].

Leon Schiffman and Leslie Kanuk define consumer behavior as the actions individuals undertake in searching for, purchasing, using, and evaluating products. Their studies highlight product quality, price, brand trust, and the influence of reference groups as key determinants of consumer purchasing decisions [6].

Research on the market for medicinal plants and natural products has revealed that consumers' attitudes toward health, product naturalness, environmental safety, and therapeutic properties play a crucial role in shaping purchasing decisions. In particular, the growing demand for natural products is associated with consumers' increasing caution toward synthetic pharmaceutical products and their desire to adopt healthier lifestyles [7].

Several international studies have identified product origin, certification, manufacturer reputation, product composition, and packaging quality as important factors influencing the purchase of medicinal plant products. Researchers emphasize that consumers are significantly more likely to purchase such products when they have sufficient information regarding product quality and safety [8].

In recent years, the development of digital technologies and e-commerce has introduced new factors affecting consumer behavior. Electronic trading platforms, social media advertising, customer reviews, and rating systems have become increasingly influential in shaping purchasing decisions. This trend is particularly evident in the medicinal plant products market, where consumer trust in online information sources continues to grow [9].

Although considerable efforts have been made to develop the medicinal plant sector in Uzbekistan, there remains a lack of studies that assess consumer behavior using economic and statistical methods. Existing research has primarily focused on the cultivation, processing, and export of medicinal plants, while comprehensive analyses of the factors influencing consumer purchasing decisions remain limited.

Therefore, the present study aims to identify the factors affecting consumers' purchasing decisions regarding medicinal plant products and to evaluate the magnitude of their influence. The distinctive feature of this research lies in its use of survey data collected from consumers and

the application of economic and statistical methods to analyze the determinants of purchasing behavior and formulate practical recommendations.

Research Methodology and Data Sources

This study utilized both primary and secondary data to identify and evaluate the factors influencing consumer purchasing decisions in the medicinal plant products market. The research database consisted of survey results collected from consumers of medicinal plant products in the Republic of Uzbekistan, relevant legal and regulatory documents, scientific literature, and statistical data.

To collect primary data, an online survey was conducted using the Google Forms platform. The questionnaire was designed to assess consumers' attitudes toward medicinal plant products, their level of usage, purchasing motives, and the factors influencing their purchasing decisions. Within the survey framework, respondents' perceptions regarding product quality, price, naturalness, packaging, manufacturer reputation, advertising activities, and recommendations from other consumers were examined.

To analyze consumer behavior, the study employed economic-statistical methods, comparative analysis, grouping techniques, and factor analysis. Initially, respondents' answers were summarized, and the significance of various factors influencing purchasing decisions was assessed. In the subsequent stage, factor analysis was applied to identify relationships among variables and to group them into broader dimensions.

Through factor analysis, the most influential determinants affecting consumer purchasing decisions were extracted from a large number of observed variables. This approach made it possible to combine interrelated indicators into broader factor groups and identify the key determinants that exert the strongest influence on consumer choice. The statistical processing of the data was carried out using the STATA 17 software package.

During the analytical process, the factors influencing consumers' purchasing decisions regarding medicinal plant products were classified into two major groups. The first group consisted of factors reflecting the product's consumer value, while the second group included factors related to marketing and information influence. This classification provided a deeper understanding of the mechanism underlying consumer purchasing decisions and facilitated the development of practical recommendations.

The main advantage of the research methodology is that it enabled consumer decisions to be evaluated not only from a theoretical perspective but also on the basis of empirical evidence. As a result, the study successfully identified the key factors affecting consumer choice in the medicinal plant products market and assessed their significance in market development.

Research Findings and Analysis

As part of the study, the results of a survey conducted among residents of the Surkhandarya region were analyzed to identify the factors influencing consumer purchasing decisions in the medicinal plant products market. Responses from 1,207 respondents were statistically processed, and the factors affecting consumer decisions were evaluated using factor analysis.

The survey findings indicate that medicinal plants play an important role in the daily lives of the population. A substantial proportion of respondents reported that they regularly use medicinal plants. The primary purposes of use were identified as medical treatment, disease prevention, and the maintenance of overall health and well-being. These findings suggest that health-related motivations constitute the dominant drivers of demand for medicinal plant products.

Furthermore, the results demonstrate that consumers increasingly perceive medicinal plant products not only as therapeutic remedies but also as preventive healthcare products. This trend reflects a growing awareness of healthy lifestyles and a stronger preference for natural and plant-based alternatives. Consequently, the demand for medicinal plant products is largely shaped by

consumers' desire to improve health outcomes, strengthen immunity, and reduce dependence on synthetic pharmaceutical products.

The survey also revealed that consumer purchasing behavior in the medicinal plant products market is influenced by a combination of product-related and market-related factors. In particular, consumers tend to place greater importance on product reliability, quality assurance, safety, and the availability of accurate information when making purchasing decisions. These findings highlight the need for producers and distributors to focus not only on product availability but also on enhancing consumer trust through quality assurance mechanisms and effective communication strategies.

Table 1

Sales Channels Considered Most Reliable by Consumers for Purchasing Medicinal Plant Products¹

Sales Channel	Share (%)
Pharmacies	70.8
Traditional Markets	43.8
Specialized Herbal Shops	14.7
Online Stores and Internet Platforms	12.5
Other Sources	2.2
Self-Cultivation (Home Growing)	0.6

According to the data presented in **Table 1**, **70.8%** of respondents identified pharmacies as the most reliable sales channel for purchasing medicinal plant products. This finding indicates a high level of consumer trust in product quality, safety, and official regulatory control. At the same time, **43.8%** of respondents recognized traditional markets as an important purchasing channel. Although the shares of specialized herbal shops (**14.7%**) and online sales platforms (**12.5%**) remain relatively low, these figures confirm the gradual growth in the importance of digital channels in the marketing and distribution of medicinal plant products. These results suggest that producers and distributors should strengthen cooperation with pharmacies while simultaneously expanding and improving e-commerce platforms.

The analysis also revealed several challenges faced by consumers when purchasing medicinal plant products. These include price instability, the complexity of certification procedures, the presence of counterfeit products in the market, inadequate packaging quality, insufficient consumer information, and weak marketing activities. These issues were identified as the major barriers affecting consumer confidence and influencing purchasing decisions in the medicinal plant products market.

Table 2

Descriptive Statistics of Factors Influencing Consumer Purchasing Decisions in the Medicinal Plant Products Market²

Factors	Mean Value	Standard Deviation
Price Fluctuation	3.17	1.17
Difficulty of Certification	3.54	1.30

¹ Source: Compiled by the author based on the results of the consumer survey.

² Source: Compiled by the author based on survey results.

Factors	Mean Value	Standard Deviation
Counterfeit Products	3.93	0.76
Packaging Quality	2.83	0.95
Lack of Information	3.83	0.84
Marketing Channels	3.83	0.84

The descriptive statistics presented in **Table 2** provide an overview of the key factors influencing consumer purchasing decisions in the medicinal plant products market. Among the examined variables, **counterfeit products** recorded the highest mean score (**3.93**), indicating that consumers perceive the presence of fake or low-quality products as one of the most significant challenges in the market. Similarly, **lack of information** and **marketing channels** both achieved relatively high mean values (**3.83**), highlighting the importance of information availability and effective marketing in shaping consumer behavior.

The factor related to the **difficulty of certification** also received a considerable mean score (**3.54**), suggesting that certification procedures and quality assurance mechanisms play an important role in consumer perceptions of medicinal plant products. In contrast, **packaging quality** recorded the lowest mean value (**2.83**), indicating a comparatively lower level of consumer satisfaction with the packaging and presentation of available products.

Regarding variability, the highest standard deviation (**1.30**) was observed for the certification difficulty factor, reflecting diverse consumer opinions on this issue. Conversely, the relatively low standard deviation for counterfeit products (**0.76**) suggests a stronger consensus among respondents regarding the prevalence and significance of this problem. Overall, the results indicate that product authenticity, information accessibility, certification, and marketing effectiveness are among the most influential factors affecting consumer purchasing decisions in the medicinal plant products market.

To identify the underlying relationships among these factors, **factor analysis** was conducted. Prior to performing the analysis, the suitability of the data for factor analysis was assessed using the **Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy** and **Bartlett’s Test of Sphericity**. The results indicated a KMO value of **0.753**, confirming that the selected dataset was sufficiently appropriate for factor analysis. Furthermore, Bartlett’s Test of Sphericity was statistically significant ($p < 0.001$), demonstrating the existence of strong correlations among the variables. These findings confirm the adequacy of the dataset and support the application of factor analysis for identifying the key dimensions underlying consumer purchasing decisions in the medicinal plant products market.

Table 3
Key Factors Identified Through Factor Analysis³

Indicator	Value
KMO Measure	0.753
Bartlett’s χ^2	4297.618
Degrees of Freedom	15
p-value	0.000
Number of Extracted Factors	2

³ Source: Compiled by the author based on STATA 17 output.

Indicator	Value
Total Variance Explained	74.98%

The results presented in **Table 3** confirm the suitability of the dataset for factor analysis. The **KMO value of 0.753** indicates an acceptable level of sampling adequacy, suggesting that the selected variables are appropriate for identifying underlying factor structures. In addition, **Bartlett’s Test of Sphericity** produced a statistically significant result ($\chi^2 = 4297.618$, $p < 0.001$), confirming the existence of strong correlations among the variables and supporting the application of factor analysis.

The analysis resulted in the extraction of **two principal factors**, which together explained **74.98% of the total variance**. This high explanatory power indicates that the identified factors successfully capture most of the information contained within the original variables. Consequently, the extracted factors provide a reliable basis for understanding the key determinants of consumer purchasing decisions in the medicinal plant products market.

As a result of the factor analysis conducted using the **Principal Component Analysis (PCA)** method, the six initial variables were consolidated into **two principal factors**. The first factor explained **57.74%** of the total variance, while the second factor accounted for **17.24%**. Together, these two factors explained approximately **75% of the total variance** in the dataset. This high level of explanatory power indicates that the selected factors play a significant role in shaping consumers’ purchasing decisions in the medicinal plant products market. Furthermore, the results suggest that the identified factors adequately capture the underlying structure of consumer perceptions and preferences, providing a reliable basis for further analysis and interpretation.

Table 4

Factor Loadings of Variables Influencing Purchasing Decisions in the Medicinal Plant Products Market⁴

Variable	Factor 1	Factor 2
Price Fluctuation	0.439	0.833
Difficulty of Certification	0.779	-0.463
Counterfeit Products	0.827	0.147
Packaging Quality	0.898	-0.292
Lack of Information	0.833	0.135
Marketing Channels	0.694	0.033

According to the results presented in **Table 4**, the first factor exhibited the highest loadings for **packaging quality (0.898)**, **lack of information (0.833)**, **the prevalence of counterfeit products (0.827)**, and **difficulties associated with certification procedures (0.779)**. These findings indicate that factors related to **product quality, reliability, and consumer trust** play a dominant role in shaping purchasing decisions. In other words, consumers place considerable importance on obtaining reliable products supported by adequate information, proper certification, and quality packaging when selecting medicinal plant products.

The second factor was primarily associated with **price fluctuation (0.833)**, suggesting that pricing considerations constitute a separate dimension influencing consumer purchasing behavior. Although price remains an important determinant, the results demonstrate that quality-related and trust-related factors exert a stronger influence on purchasing decisions than price alone. This finding highlights the distinctive nature of the medicinal plant products market, where consumers

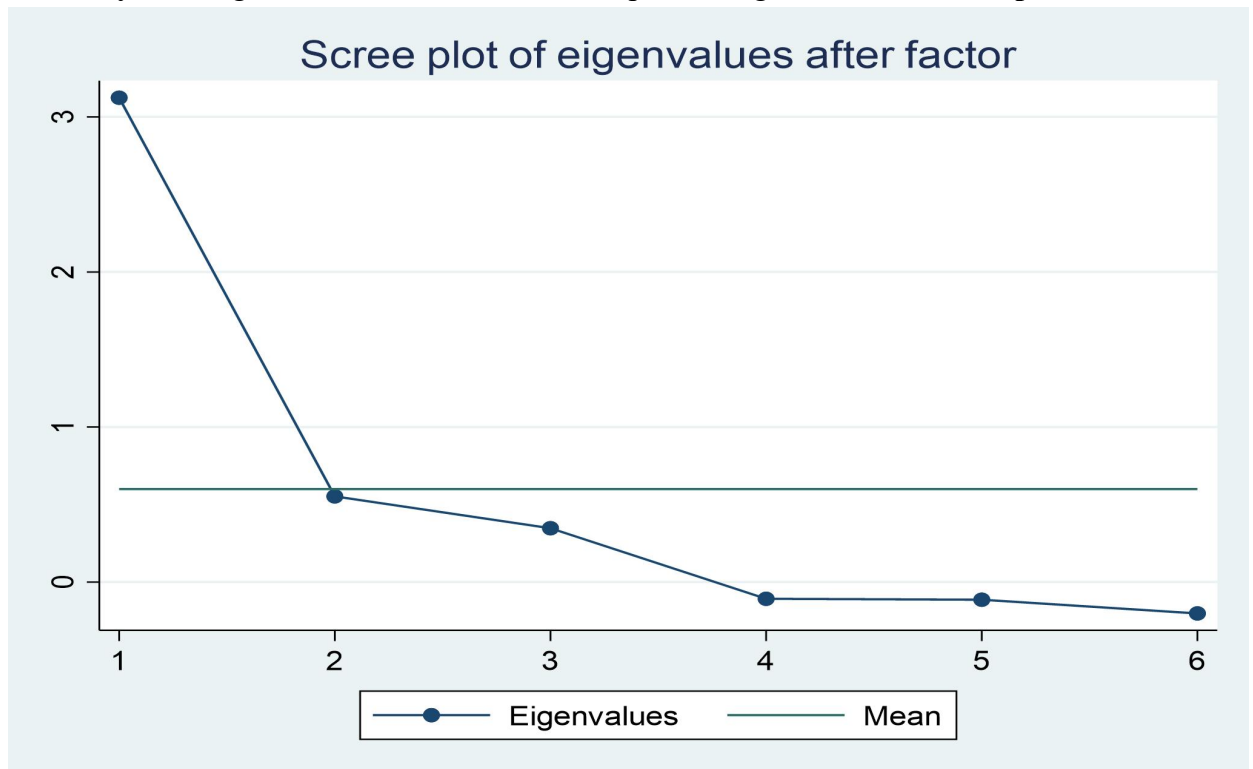
⁴ Source: Compiled by the author based on STATA 17 output.

tend to prioritize product safety, authenticity, and effectiveness over purely economic considerations.

In contrast, the second factor was primarily represented by **price variability**, which can be labeled as the “**Price Factor**.” The analysis revealed that both the price level and fluctuations in the prices of medicinal plant products have a direct impact on consumers’ purchasing decisions. This finding suggests that consumers are sensitive not only to the affordability of products but also to price stability. Significant price fluctuations may reduce consumer confidence and create uncertainty in purchasing behavior, whereas stable and reasonable pricing can encourage repeat purchases and strengthen consumer loyalty. Therefore, maintaining an appropriate pricing strategy is essential for improving market competitiveness and enhancing consumer satisfaction in the medicinal plant products sector

Figure 1. Scree Plot of Factors Influencing Purchasing Decisions in the Medicinal Plant Products Market⁵

Based on the obtained results, it was determined that factors related to **product quality and reliability** have a greater influence on consumer purchasing decisions than the **price factor**. This



finding can be explained by the specific characteristics of the medicinal plant products market. When purchasing such products, consumers tend to prioritize their effectiveness, safety, and quality assurance over price considerations. As medicinal plant products are closely associated with health and well-being, consumers are more likely to choose products that they perceive as trustworthy and beneficial, even if they are offered at relatively higher prices. Therefore, ensuring product quality, authenticity, and reliability plays a crucial role in strengthening consumer confidence and encouraging purchasing behavior in this market.

Thus, the findings of the study indicate that **two key factors—product reliability and price—play a significant role in shaping consumer purchasing decisions in the medicinal plant products market**. Among these factors, product reliability, which encompasses quality assurance, authenticity, certification, and information availability, was found to exert a stronger

⁵ Source: Compiled by the author based on the results generated in STATA 17.

influence on consumer behavior than price considerations. These results highlight the importance of building consumer trust through the provision of safe, high-quality, and well-documented products.

Taking these factors into account can assist producers and distributors in developing more effective **consumer-oriented marketing strategies**, improving product quality standards, and enhancing their competitive position in the market. Furthermore, strengthening quality control systems, increasing transparency in product information, and implementing appropriate pricing strategies can contribute to higher consumer satisfaction and promote the sustainable development of the medicinal plant products sector.

Conclusions and Recommendations

The findings of this study demonstrate that the process of consumer purchasing decision-making in the medicinal plant products market is influenced by a wide range of economic, marketing, and informational factors. Based on the survey results and factor analysis, the most influential determinants of purchasing decisions were identified as product quality, the level of certification, the availability of product-related information, packaging quality, and the presence of counterfeit products in the market.

The factor analysis consolidated the initial six variables into two principal factors. The first factor encompassed variables associated with consumer trust in products and the availability of market information, whereas the second factor represented price-related considerations. The results revealed that product reliability and quality assurance exert a stronger influence on purchasing decisions than price factors. This finding can be attributed to the fact that medicinal plant products belong to the health-related product segment, where consumers tend to prioritize safety, effectiveness, and trustworthiness over cost considerations.

The study also found that the majority of respondents prefer purchasing medicinal plant products from pharmacies and trusted suppliers. At the same time, inadequate quality assurance mechanisms, limited access to product information, and weak marketing activities were identified as factors that reduce consumer confidence in the market.

Based on the research findings, the following practical recommendations are proposed:

- Increase consumer confidence through the introduction of mandatory product labeling and digital traceability systems for medicinal plant products;
- Simplify certification procedures and align them with international quality standards;
- Establish a unified information platform for medicinal plant products to provide consumers with comprehensive information regarding product composition, usage instructions, and health benefits;
- Encourage producers to adopt modern packaging and branding practices to improve product attractiveness and market recognition;
- Strengthen marketing activities through social media and e-commerce platforms while promoting digital communication with consumers.

Overall, a comprehensive understanding of consumer behavior and the factors influencing purchasing decisions in the medicinal plant products market can assist producers and distributors in developing more effective marketing strategies. This, in turn, can contribute to increasing domestic demand for medicinal plant products, strengthening consumer trust, and enhancing the competitiveness and sustainable development of the sector.

Practical Recommendations

The results of the study indicate that product quality, certification level, information availability, and price-related factors play a significant role in shaping consumer purchasing decisions in the medicinal plant products market. In this regard, the following practical recommendations have been developed to improve the performance of stakeholders operating within the sector.

First, it is advisable for manufacturers of medicinal plant products to improve their packaging and labeling systems in accordance with international standards. The findings confirmed that packaging quality has a substantial influence on consumer purchasing decisions. Therefore, it is recommended that product packaging include detailed information regarding product composition, instructions for use, production date, certification details, and additional information accessible through QR codes.

Second, certification procedures for medicinal plant products should be simplified and made more transparent. Such measures would not only reduce compliance costs for producers but also increase consumer confidence in product quality and safety.

Third, awareness-raising and educational activities should be strengthened to inform consumers about the beneficial properties of medicinal plants, proper usage guidelines, and methods for assessing product quality. In this regard, social media platforms, specialized websites, and e-commerce systems can serve as effective channels for disseminating information and promoting consumer awareness.

Fourth, producers and distributors should make greater use of e-commerce opportunities. The study revealed a growing consumer interest in online purchasing channels. Therefore, the development of specialized online marketplaces for medicinal plant products, together with the application of digital marketing tools, can contribute to expanding market reach and increasing sales opportunities.

Fifth, digital traceability and product identification systems should be introduced to reduce the circulation of counterfeit products in the market. Such systems would not only protect consumer rights but also enhance the competitiveness and reputation of legitimate producers.

The implementation of these recommendations can strengthen consumer trust in the medicinal plant products market, stimulate domestic demand, and improve the competitiveness of medicinal plant products. Ultimately, these measures can contribute to the sustainable growth and long-term development of the medicinal plant industry.

References

1. World Health Organization (WHO). (2013). *WHO Traditional Medicine Strategy 2014–2023*. Geneva: World Health Organization.
2. Administration of the President of the Republic of Uzbekistan. (2020). *Regulatory and Legal Documents on the Protection, Cultivation, Processing, and Sustainable Use of Medicinal Plants*. Tashkent, Uzbekistan.
3. Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). Pearson Education.
4. Schiffman, L. G., & Kanuk, L. L. (2015). *Consumer Behavior*. Pearson Education.
5. Food and Agriculture Organization of the United Nations (FAO). (2021). *Medicinal and Aromatic Plants: Trade and Sustainable Development*. Rome: FAO.
6. Organisation for Economic Co-operation and Development (OECD). (2022). *E-commerce and Consumer Behaviour Report*. Paris: OECD Publishing.