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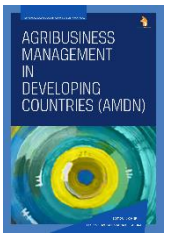

RESEARCH ARTICLE

PROFITABILITYOF MEDICINAL PLANT PRODUCT EXPORTS FROM MONTSERRADO COUNTY, LIBERIA

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ABSTRACT

The trade of medicinal plants (MPs) is proving to be a major source of foreign earnings for many developing nations. In Montserrado County, the trade of medicinal plant products (MPPs) is prevalent, but literature regarding the export of these products from Liberia remains insufficient. This study examined the trade MPPs originating from Montserrado County on the international stage. A survey of seven selected marketplaces was carried out to determine the number of herbal product vendors (HPVs) in the study area. Primary data was collected from 27 herbal practitioners (HPs), and 43 HPVs using a questionnaires. Excel 2016 was used to perform a descriptive data analysis. Results showed that a whopping 70% of the respondents were involved in local trade, while only 30% were involved in exportation. ECOWAS Countries (38.10%) were the major export markets for MPPs from the County. This study found that the exportation of MPPs is more profitable than trading them locally, as reported by 90.48% of the exporters. The cheap cost of production (47.62%) was identified as the major spur to the exportation of these products. Nonetheless, the high cost of transportation (71.43%) was found to be the major hindrance to the exportation of these products. The government's involvement in this sector can boost Liberia's foreign earnings and open new opportunities for the country bordered on reduction of unemployment and promotion of economic activities.

KEYWORDS

Medicinal Plant Products, international trade, Liberia, commerce, herbal products.

1. INTRODUCTION

1.1 Background to the study

A medicinal plant is any plant with substances in one or more of its organs, which can be used for therapeutic intentions or as precursors for chemo-pharmaceutical semi-synthesis. The designation of a plant as medicinal implies its utility as a drug, therapeutic agent, or active constituent of a medicinal formulation (Yudharaj et al., 2016). Medicinal plants (MPs), a global biodiversity asset, significantly contribute to human well-being, food security, health, livelihoods, economic progress, and various belief systems, especially in developing nations, providing essential subsistence (Volenzo and Odiyo, 2020). Medicinal and aromatic plants (MAPs) have been used for various purposes, including celebrations, culinary practices, preservation techniques, traditional medical uses, and cosmetics. They can be acquired through wild harvesting or cultivation and are used by over three-quarters of the global population. They include leaves, herbs, flowers, fruits, bark, wood, and roots (Parvin et al., 2023). MPs possess significant local, national, and global economic worth. Demonstrations have revealed the potential of MPs to enhance rural communities' livelihoods (Ndhlovu et al., 2023). They are safe for employment, cost-effective, renewable, and abundant, boosting demand both domestically and internationally (Tripathi et al., 2017). MAPs, a subset of non-timber forest products (NTFPs), are valuable for their social-cultural and economic value. They promote healthcare, generate financial resources, and have applications in food, condiments, cosmetics, and fragrances, indicating their potential for economic progress (Ghimire et al., 2016).

Herbal medicinal products (HMPs) are gaining global importance due to their health benefits and perceived safety. Around 80% of developing nations rely on traditional herbal medicines (THMs). The international trade of MPs and their derivatives reached US$60 billion in 2000, with an average annual growth rate of 7%. China and India are the leading exporters, while Hong Kong, Japan, the USA, and Germany are the leading exporters and importers (Karik and Tunçtürk, 2019). The continuous significant increase in the global market for MAPs has allowed exporting countries to increase their involvement in this industry by creating alternative processing methods (Spina et al., 2023). The demand for herbal medicines (HMs) has led to an increase in international plant material exports, with over 30,000 plant species used globally, with 90% of African nations relying on MPs (Mollel et al., 2021). The global HMs market is valued at over $60 billion annually and is expected to grow at an average annual growth rate of 6.4%. Factors contributing to this growth include consumer preference for natural therapies, concerns about adverse side effects, belief in herbal drugs' devoid of side effects, growing interest in alternative medicines, aging populations' preference for preventive medicine, the potential efficacy of herbal medicines in treating certain diseases, self-medication, quality and safety improvement, and the high cost of synthetic medicines. The World Health Organization estimates the market value to be around $43 billion annually. In 1991, the European market was valued at $6 billion, with Germany, France, and Italy accounting for $3 billion, $1.6 billion, and $0.6 billion respectively. By 1997, the European market reached $7.0 billion, with Germany representing 50% of the market (Gunjan et al., 2015).

Liberia's Upper Guinean region, home to a diverse array of plant species, has been extensively explored by European and American botanists since the 1800s. This rich botanical diversity is linked to the local inhabitants'

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cultural heritage and serves as a valuable source of traditional health remedies. Liberian forest herbalists, both male and female, possess extensive knowledge about MPs, with gender differentiation and specialization in treating various illnesses (Lebbie et al., 2017). Liberia has a vast natural resource base consisting of both non-renewable and renewable resources (Welti et al., 2015). This abundant variety of botanical specimens plays a significant role in the cultural legacy of the indigenous community, including Montserrado County, serving as an invaluable reservoir of medicinal solutions for numerous health ailments encountered by the populace (Lebbie et al., 2017). There has been a significant discourse on the possibility of promoting the cultivation of specific plant species that are highly traded in Ghana and other adjacent nations but are not currently cultivated in Liberia. The attraction of these items is due to their significant worth in the worldwide marketplace and the potential they possess for generating income (Welti et al., 2015).

1.2 Statement of the problem

The trade of MPs has been recognized as a potential means of supporting forest-edge communities, given its economic significance. As a result, there have been recommendations to employ this business as a way of encouraging forest conservation (Delbanco et al., 2017). However, knowledge of the international trade of medicinal plant products (MPPs) from Liberia particularly Montserrado County is insufficient or lacking. This present study therefore sought to examine the international trade of MPPs from Montserrado County. The specific objectives of the study were to: identify the export destinations of Montserrado County's MPPs, investigate the relative profitability of trading MPPs locally in Montserrado County compared to their exportation, and examine the factors encouraging and discouraging the export of MPPs from Montserrado County.

2. Literature Review

Using the ARDL Approach to determine the factors influencing the export of medicinal plants from Iran, researchers established that exchange rate fluctuations, oil exports, and herbs exports from rival countries had a negative and significant effect on the export of medicinal plants from the country, while the indices of domestic production of Iranian herbs, real exchange rate, the prices of Iranian herbs and the trade liberalization variable had a positive and significant effect on the amount of herbs export (Ghebleh et al., 2024).

In another study, it was found that differentiation strategies, market development, and product development have a positive and significant impact on the export performance of companies exporting MPPs from Iran (Karim et al., 2020).

Analyzing the export of medicinal plants from Ukraine using a method of scientific comparison, descriptive-analytic method, and the method of statistical analysis, a study concluded that the volumes of medicinal plant exports from Ukraine have been experiencing an increasing trend in recent years (Mirzoieva and Nechyporenko, 2020). They also concluded that Poland, Germany, and Latvia are the largest importers of medicinal plants from Ukraine.

Researchers used explanatory factor analysis as a multivariate analysis and associated method to classify the factors affecting the marketing of medicinal plants on the international scene (Vosough and Doost, 2017). Factors affecting the marketing of medicinal plants were summarized in 4 factors including cost factor, product factor, location and distribution channel, and policies factors and activities to encourage.

A study used structured pre-tested questionnaires and descriptive statistics to investigate the profitability, return on investment (ROI), and knowledge level of the utilization of medicinal plants among herb vendors (HVs) in Port Harcourt Metropolis, Nigeria (Oladele et al., 2021). The study concluded that there are impressive profits and Return on Investment in local herbal materials vending which sustains livelihood among herb vendors in Port Harcourt Metropolis.

Researchers examined the herbal medicine industry in Ghana, with a particular focus on its prospects, challenges, and ways forward (Asase, 2023). His study concluded that the prospects for medicinal plant trade in Ghana are huge, which includes the reduction of the country's national health budget and serves as a source of foreign and domestic income, as well as the creation of employment and poverty reduction. His study also identified registration of herbal medicine products and practitioners, a lack of clinical trials for herbal products, standards, and quality control issues, a shortage of raw plant materials for production, and insufficient scientific research to support traditional claims on the pharmacological effects of medicinal plants are the major challenges posed to the Ghanaian herbal industry.

A study in 2021 named the three channels of the marketing chain in Sabah, Malaysia as self-collected, buy directly from collected, and buy from middlemen (Kodoh et al., 2021). Their study shows a high-profit margin for the local trade of MPPs.

A quantitative market survey was used, interviewing 120 vendors in three major cities and all vendors in two towns to identify, quantify, and evaluate the economic Importance of the medicinal plant trade in Sierra Leone (Jusu and Sanchez, 2014). It was found that 40 species were traded in urban markets, and nine species were identified to be the most frequently traded in all three cities. Only two plants were traded in the towns. It was estimated that at least USD 64, 000 are being annually traded in informal markets in major cities, the nine most frequently traded species contributing most of the retail value. The result suggests that the trade of certain medicinal plants could be promoted as an alternative livelihood strategy for edge communities of protected areas.

The trends in the volume and value of medicinal and aromatic plant commodities exported from Nepal and identifies the major export destinations (Ghimire et al., 2016). Using formal trade data of Nepalese MAP products for the period 2005-2014 from the repository of the UN COMTRADE database, their study indicated that the export value of medicinal and aromatic plant products increased from USD 27. 49 million in 2005 to USD 60.09 million in 2014. According to them, the average annual export of Nepalese MAP products for the same period was 13.23 thousand tons, reflecting the global demand for MAPs globally. They concluded that this increase was primarily the result of a price increase and identified India as the major export destination for Nepalese medicinal and aromatic plant products during this period. China, Singapore Hong Kong, and Vietnam are the major destinations identified for the most expensive high-value medicinal plant products.

Research found high profitability for local medicinal plant vendors in Antananarivo, Madagascar (Randriamiharisoa et al., 2015). Profits gained from the trade of medicinal plants and their by-products in the city were competitive with other salaried positions and high transportation costs were found to be the leading factor constraining the local trade of these products and therefore lower profitability for other members in their supply chain in the city.

A study stated in 2019 that the export value of MAPs was 265 million US dollars and that North America, the European Union, Latin America, the Far East, and North Africa. US, Germany, Vietnam, Netherlands, Poland, Brazil, Canada, Italy, Belgium, Greece, France, and Japan are the top destinations of medicinal and aromatic plant exports from Turkey (Karik and Tunçtürk, 2019).

Researchers interviewed vendors to assess the economic importance, uses, and origins of the medicinal plants traded in two major towns, Marsabit and Moyale towns, in Northern Kenya (Delbanco et al., 2017). Thirty species were found to be traded in the two towns. The seven most frequently traded species accounted for an annual volume of 5500kg with an annual retail value of US$25,900. The study indicates the substantial economic importance of the medicinal plant trade in the area, and ethnicity strongly affected plant use.

Assessing the trade pattern of important medicinal plants in the Chilime Village Development Committee (VDC) of Rasuwa district, Nepal, researchers concluded that 40% of the households of Climime VDC were involved in the collection and trade of medicinal plants (Himagain and Shrestha, 2009). Most of the collection (90%) was for trade, which has supported 40% of family income contributing to the average household net profit of NRs 0.25 million per year. The local traders also made a good profit from medicinal plants with an annual net contribution of about NRs 0.25 million per trader. According to their study, the local traders in VDC purchase medicinal plants from the harvesters and later dry them properly if they were not dried at the time of their purchase from the harvesters. The Traders then transport their products to other parts of Nepal, while the bulk of these products are exported to Indian traders.

Survey was used to assess herbal markets in major cities of Pakistan, found that the annual value of medicinal and aromatic plant exports from Pakistan in 2012 was US$10.5 million, while imports were worth US$ 130 million (Sher et al., 2014). The major export destinations of the country's medicinal and aromatic plant export were found to be Germany, the USA, the Middle East, and Switzerland. Their study, however, found that problems such as unreliable and often poor quality of the material supplied, length of the supply chain, and poor marketing strategies have been declining the export value of medicinal and aromatic export from the country.

3. METHODOLOGY

3.1 Study Area

The study was conducted in Montserrado County (Figure 1) which is in the Northwestern part of the West African Country of Liberia. The County is located at 6°30'0 N 10°34'0 W and is the oldest among the fifteen political subdivisions of Liberia. Bensoville is Montserrado's capital and the County is and home to Liberia's capital, Monrovia. Montserrado shares borders with Bong County to the north, Bomi, and Margibi Counties to the east and west respectively, and the Atlantic Ocean to the south (Brandy et al., 2013). The total population of Montserrado County is 1, 920, 965 people representing about 36.7 percent of Liberia's total population (Liberia Institute of Statistics and Geo-Information Services, 2022).

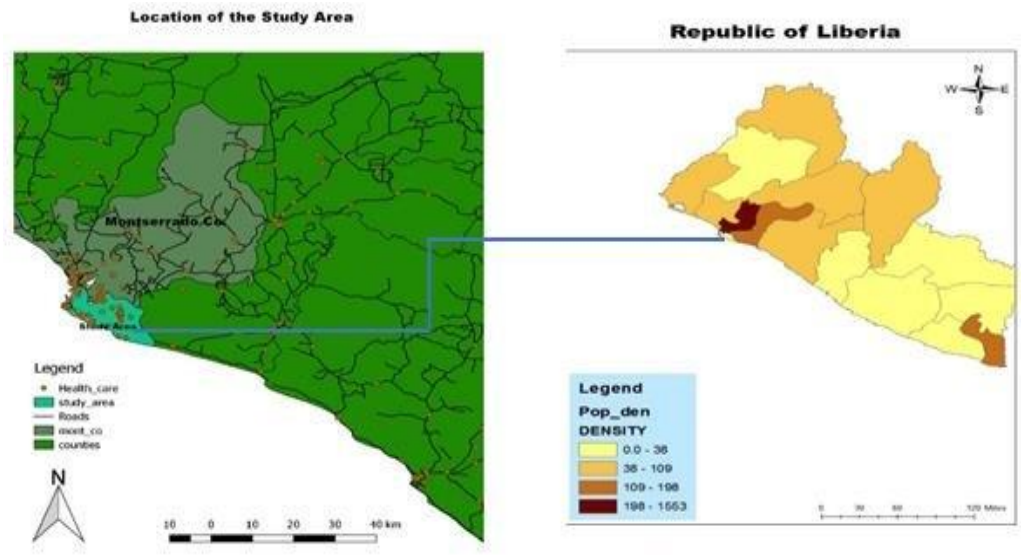

Figure 1: Map of Montserrado County. Source: Google, 2024

3.2 Research design and population of the study

The study utilized a descriptive research design with a mixed-method approach. The study considered 32 herbal practitioners (HPs) in Montserrado County who are registered with the Complementary Medicines Unit of the Ministry of Health, Republic of Liberia. A survey of herbal product vendors (HPVs) was carried out in seven selected marketplaces, and there were 49 HPVs. Therefore, the total population of the study is the combination of 32 the HPs and 49 HPVs which amounts to 81. Acknowledging Professor John Curry's in 1984, 'rule of thumb', which infers that when a study's population is 100 or below, the entire population (100%) should be selected, the authors opted to collect data from all 100 participants. However, bottlenecks and some respondents' refusal to participate in this study prevented the participation of the whole population. Only 70 respondents (27 HPs and 43 HPVs) preferred participating in the study.

3.3 Data collection and analysis

Primary data for the study was collected from the HPs and HPVs in the selected marketplaces using a Google form questionnaire. The questionnaire had both close-ended and open-ended questions. The respondents gave their permission before the questionnaire was administered to them. Data gathered from the HPs and HPVs was analyzed using Excel Version 2016. The data was first imported from the Google form questionnaire into Excel and an analysis was initiated. The analysis done in Excel was reflected in tables to display frequencies and percentages, targeting the objectives of the study.

4. RESULTS AND DISCUSSION

The socio-demographic characteristics of the respondents are contained in Table 1. Females (80%) make up many of the traders in the study area.

Table 1: Respondents' socio-demographic information. Source: Fieldwork, 2023

Characteristics	Categories	Frequenc y	(%)
Gender	Female	56	80
	Male	14	20
	Total	**70**	**100**
Age (in years)	18-30	7	10
	30-45	28	40
	45-55	15	21.43
	Above 55	20	28.57
	Total	**70**	**100**
Marital status	Married	45	64.29
	Single	14	20
	Widow/widower	10	14.28
	Divorced	1	1.43
	Total	**70**	**100**
Nationality	Liberian	53	75.71
	Ghanian	1	1.43
	Guinean	2	2.86
	Nigerian	8	11.43
	Sierra Leonean	1	1.43
	Nigerien	5	7.14
	Total	**70**	**100**

Table 1 (Cont.): Respondents' socio-demographic information. Source: Fieldwork, 2023				
Business/practice registration status	Registered with the government		41	58.57
	Registered with the Herbal association		7	10
	Unaware of the registration process		8	11.43
	Aware but have not yet registered		14	20
	Total		**70**	**100**
Category of business/ practice	Herbal Practitioners (HPs)	Full-time (HPs)	15	55.56
		Part-time (HPs)	12	44.44
	Total		**27**	**100**
	Herbal Product Vendors (HPVs)	Full-time (HPVs)	40	93.02
		Part-time (HPVs)	3	6.98
	Total		**43**	**100**
Duration of business/practice	2-5 years		9	12.86
	6-10 years		9	12.86
	Above 10 years		44	62.85
	Less than 2 years		8	11.43
	Total		**70**	**100**
Level of education	BSc		4	5.71
	Never went to school		31	44.29
	University student		1	1.43
	High school dropout		5	7.14
	High school graduate		7	10
	Primary school dropout		11	15.71
	Junior high school dropout		4	5.71
	University dropout		2	2.86
	Vocational Training		5	7.14
	Total		**70**	**100**

This aligns with Akinsola et al., in 2022 who found that most medicinal plant sellers are females in Ondo State, Nigeria. Most (40%) of the respondents were found to be between the ages of 30- 45 (Akinsola et al., 2022). The trade of plant-based materials requires a lot of energy which could be the reason why people of this age range are involved in the trade of these products. Contrarily, researcher found that most vendors of medicinal plant species in local markets in Tanzania are between the ages of 51-60 years (Hilonga et al., 2018). About 64.29% of the respondents were found to be married and 75.71% of the respondents were found to be Liberians. A study found most of the herbalists in rural Uganda to be married and are Ugandans (Ssenku et al., 2022). Married people's involvement in the trade of MPPs in Montserrado County indicates a responsible trade environment. Regarding their business or practice registration status, 58.57% were registered with the government, indicating the legality of this trade. There were more HPVs than HPs. This agrees with research in 2015, it was found that there are more herbal vendors in the markets of Antananarivo, Madagascar than other categories of medicinal plant salespersons (Randriamiharisoa et al., 2015). Concerning the duration of their business/practice, 62.85 % reported that they have been in the business/practice for 10 years or more. This reflects the cultural and longtime usage of MPPs in the study area. The study shows that 62.85% of the respondents have never been to school. In Ibadan and Ogbomoso Metropolis, Nigeria, a study indicated that medicinal plant personnel have no formal education and have business/practice duration of 10 years (Abisoye et al., 2021).

In Table 2, a whopping 70 % of the respondents do not export, while 30 % export their products, indicating a low rate at which MPPs are exported from Montserrado County. Females dominate these two categories (exporters and non-exporters). Liberians (42.86 %) are involved in the exportation of these products more than other nationals. This is followed by the Nigerien herbal traders who make up 23.81% of the exporters.

Table 2: Distribution of exporters and non-exporters of MPPs from Montserrado County. Source: Fieldwork, 2023				
Characteristics	Category		Frequency	%
Exporters/non-exporters	Respondents who export	Male	8	38.10
		Female	13	61.90
	Total		**21**	**100**
	Respondents who do not export	Male	6	12.24
		Female	43	87.76
	Total		**49**	**100**
Nationality of exporters	Liberian		9	42.86
	Nigerian		4	19.01
	Ghanian		1	4.76
	Nigerien		5	23.81
	Guinean		2	9.52
	Total		**21**	**100**

Table 3 presents the sources of MPPs that are exported, and the sources of the raw materials used to produce them. Most (57.14%) of the exporting respondents reported that their products are sourced in self-made production from scratch, while 38.10% are only distributors. The making of products by the traders themselves highlights the fact that they are skilled in the manufacturing of these products, reflecting the training they might have gotten from their ancestors and the standards maintained in the production of these products. Their direct involvement in the production of the products preserves cultural heritage and bolsters the true value of these products on the global scene. According to the respondents who make their products, their raw materials are mainly sourced in importation from other countries as reported by 46.15% (Table 3). This finding contravenes with Jusu and Cuni Sanchez in 2014 who reported that many plant materials traded in Sierra Leone are sourced in fallow/protected ancient forest areas (Jusu and Cuni Sanchez, 2014). Similarly, in Ecuador, medicinal plant species sold at traditional markets are sourced in mountain forests, cloud forests, scrub vegetation, and the Andean Paramo (Tinitana et al., 2016). The fact that most exporters who prepare their products themselves import most of their raw materials shows the difficulties experienced in getting some of the plants that are needed on the global stage in the natural habitat of Montserrado County. It could also be that MPs from Montserrado County have not been adequately advertised by traders to foreign customers. High-value medicinal plant species might be disappearing from the natural habitat of Montserrado County due to unregulated burning and farming practices. This calls for effective policies to promote good farming practices.

Table 3: Sources of MPPs that are exported, sources of raw materials. Source: Fieldwork, 2023

Characteristics	**Categories**	**Frequency**	**(%)**
Sources of MPPs	Self-made production: from scratch	12	57.14
	Distributor of the products only, not a manufacturer	8	38.10
	Products are prepared in collaboration with others	1	4.76
	Total	**21**	**100**
	Import from other countries	6	46.15
Sources of raw materials	Purchase from local vendors	5	38.46
	Harvest freely from the environment	2	15.38
	Total	**13**	**100**

Table 4: Export destinations for MPPs from Montserrado County. Source: Fieldwork, 2023

Categories	**Frequency**	**(%)**
Mano River Countries (Guinea, Sierra Leone, Ivory Coast)	7	33.33
ECOWAS Countries (Excluding Mano River Union Countries)	8	38.10
USA	5	23.81
Non-ECOWAS African Countries	1	4.76
Total	**21**	**100**

This primary destinations of MPPs exported from Montserrado County were found to be ECOWAS Countries (Excluding Manor River Union Countries), as reported by 38.10% of the respondents involved in exportation. Mano River Union Countries (Guinea, Côte d'Ivoire, and Sierra Leone) are the next major export destination for most of Montserrado County's MPPs, according to 33.33 % of the number of exporters (Table 4). In terms of regional proximity, this finding agrees with Ghimire et al. (2016) who reported that India is the top export destination for Nepal's medicinal plant exports. Also, the top destinations of medicinal plant exports from Pakistan are Germany, the USA, the Middle East, and Switzerland (Sher et al, 2014). That most of the MPPs from Montserrado County are exported to the ECOWAS region clearly reflects the geographical proximity, trade treaties, and longstanding cultural and historical connections existing between Liberia as a member state of ECOWAS and the Man River Union and other member states of these African regions. Furthermore, the prevalent use of plant-based products for medical reasons in Africa (McMullin et al., 2014) can be the reason why MPPs are mostly exported to these African regions. Liberia shares many commonalities with the USA. However, the USA stands as the third major export destination for MPPs from Montserrado County as reported by about 23.81 % of those who export (Table 4). The geographical distance between Liberia and the USA contributes to this finding. Most of the people in the USA who purchase or import MPPs from Montserrado County may be citizens of Liberia or Africans residing there and are probably familiar with the use of these plant products since they may have used them before traveling to the USA.

Table 5: Profit comparison of local trade and export of MPPs, minimum and maximum gain on export per time. Source: Fieldwork, 2023

Characteristic	**Categories**	**Frequency**	**(%)**
Profitability of exportation and local sales	Respondents who make more profits from exporting than selling locally	19	90.48
	Respondents who make more profits locally than exporting	2	9.52
	Total	**21**	**100**
Minimum gain on export per time	Below 5USD	1	4.76
	5-25USD	10	47.62
	25-50USD	4	19.05
	50-100USD	3	14.29
	100-500USD	2	9.52
	500-1000USD	1	4.76
	Total	**21**	**100**
Maximum gain on export per time	5-25SD	9	42.85
	25-50USD	3	14.29
	50-100USD	5	28.81
	100-500USD	2	9.52
	500-1000USD	2	9.52
	Total	**21**	**100**

There is a huge difference in profits gained from the domestic sales of MPPs and exports. Amongst the respondents who export their products, 90.48% reported that they obtain more profits from exporting their products per time than selling the same quantity locally (Table 5). This is in contrast to a study done in 2021, which found that there are impressive profits and Returns on Investment for the local traders of MPs in Port Harcourt, Nigeria (Oladele et.al, 2021). The medicinal plant trade supports about 40% of family income in Rasuwa district, Nepal, contributing to the average household net profit of NRs 0.25 million per year. Despite the impressive profits of the export of MPPs from Montserrado County, traders of these products are still heavily challenged, which may require the government's intervention. Profits from this trade complement the income of the traders. This finding means that if exporters of MPPs from Montserrado County continue to target the international market, alleviating some of the challenges to this trade, they can effectively support economic progress and enhance their livelihood. Furthermore, targeting the global market of MPPs can boost government revenue generation, as traders will have to pay taxes to the government when their exports are expanded and properly regulated. The minimum and maximum gains on export per time are in the same bracket. Table 5 also shows that the minimum gain on export per time of 5-25 USD was reported by most (47.62%) of the exporters, while the maximum gain on export per time of 5- 25 USD was reported by 42.85%. This consistency in gains reflects the respondents' inability to increase their exports over time. The lack of capacity on the part of the traders to respond to the growing global demand for MAPs is seen through these findings. The export values are low, and so are the gains on them, although bigger than the ones obtained from local trade.

Table 6: Factors encouraging and discouraging the export of MPPs from Montserrado County. Source: Fieldwork, 2023

Characteristics	Categories	Frequency	(%)
Factors encouraging the export of medicinal plant products	Cheap cost of production	10	47.62
	Cheap cost of packaging	6	28.57
	High demand from foreign customers	3	14.29
	High profitability of export	2	9.52
	Total	**21**	**100**
Factors discouraging the export of medicinal plant products	Lack of knowledge of the export process	2	9.52
	High cost of transportation	15	71.43
	Low demand from foreign customers	3	14.29
	High cost of production	1	4.76
	Total	**21**	**100**

According to the result of this study, the cheap cost of production and high cost of transportation are the leading factors encouraging and discouraging the export of MPPs from the study area respectively. About 47.62% of the respondents who export identified the cheap cost of production as the leading factor encouraging the exportation of their products and 71.43% reported that the high cost of transportation discourages the exportation of their products (Table 6). Exchange rate fluctuations, oil exports, and herbs exports from rival countries have a negative and significant effect on the export of medicinal plants from Iran, while the indices of domestic production of Iranian herbs, real exchange rate, the prices of Iranian herbs and the trade liberalization variable had a positive and significant effect on the amount of herbs export from Iran (Ghebleh et al., 2024). Problems such as unreliable and often poor quality of the material supplied, length of the supply chain, and poor marketing strategies have been declining the export value of medicinal and aromatic exports from Pakistan (Sher et al., 2014). The materials used to produce these products are not expensive in their import destinations in Africa, mainly Nigeria, from where most of the raw materials are imported. The cheap cost of production ensures the competitiveness of Montserrado County on the international herbal market and therefore presents great prospects for export expansion. However, the high cost of transportation represents a serious barrier to entry. This blockage prevents most of the traders from taking advantage of the great prospects that lie in the global medicinal plant trade. This factor compels most foreign individuals to come to Montserrado County to purchase these products, making most of the traders generate foreign earnings only when foreign customers decide to come to Montserrado County for their products.

Table 7: Minimum and maximum values of export per time, channels of export. Source: Fieldwork, 2023

Characteristic	Categories	Frequency	(%)
Minimum value of export per time	500-1000 USD	2	9.52
	100-500 USD	7	33.33
	25-50 USD	3	14.29
	50-100 USD	1	4.76
	5-25 USD	7	33.33
	More than 1000 USD	1	4.76
	Total	**21**	**100**
Maximum value of export per	50-100 USD	1	4.76
	25-50 USD	3	14.29
	5-25 USD	6	28.57
	100-500 USD	7	33.33
	500-1000 USD	2	9.52
	More than 1000 USD	2	9.52
	Total	**21**	**100**
Channels of export	Products are sent through other travelers	1	4.76
	Foreign customers pick up products from Montserrado County	11	52.38
	Personal travel sales based on demand from foreign individuals and businesses	9	42.86
	Total	**21**	**100**

The minimum and maximum values of export per time and the channels through which exporters get their products to customers in foreign countries are displayed in Table 7. The bracket for the minimum and maximum monetary values of exports per time for most of the exporters is the same. About 33.33% (most) reported that their minimum value of export per time is between 100-500 USD, while the same percentage of the exporters said their minimum export value per time is 5-25 USD. In terms of maximum value of export per time, 33.33 % of the exporters reported 100-500 USD. This percentage share is closely followed by 28.57% who reported that their maximum export value is between 5-25 USD (Table 6). A study reported that the annual worth of the domestic medicinal plant trade in Benin is 2.7 million USD, proving substantial economic importance for local traders (Quiroz et al., 2013). In Pakistan, the annual export value of medicinal plants in 2012 was US$10.5 million (Sher et al., 2014). The findings of this study mean that there is consistency in the value of exports per time, inferring that most of the exports are made on a small-scale and individual basis. The exporters face challenges that weaken their capacity to expand their business, even though some of them are full-time in the business/practice. Regarding the channels employed to get their products to customers in foreign countries, about 52.38% of the exporters agreed that foreign customers usually come to buy their products here in Montserrado County. This is closely followed by 42.86 % who reported that they travel to sell their products in other countries based on demand from businesses and individuals in those countries (Table 7). In Nepal, local traders obtain MPs from harvesters before selling them locally and internationally (Himagain and Shrestha, 2009). The desire of foreign customers to directly purchase MPPs in Montserrado County from the traders signifies a clear trading approach which indicates the absence of mediators between the foreign customers and the exporters. This trade pattern also reflects the growing demand for MPPs on the global stage and can also be attributed to the efficacies of these products, reflecting the skills of HPs and vendors in the preparation of the products.

5. Conclusions

The aim of this study was to examine the international trade of MPPs from Montserrado County. From the findings of the study, it is evident that the medicinal plant trade contributes immensely to the economic well-being of local traders in the study area; especially those who are engaged in the exportation of MPPs. Profits gained from exportation are enormous compared to the ones from local trade. Amid this, the export of these products is done by only a small number of traders. The process of producing these products is cheap, which serves as a spur for their exportation. The findings of this study establish that many of the traders of MPPs do not export their products mainly because of the high cost of transportation incurred in exportation. Looking at the gains obtained by many countries from the export of MAPs, MPPs, and other plants-based materials, it is recommended that government gets fully involved with the sector to ensure proper regulations. The direct involvement of the government through innovations such as storage development for MPPs may expand its revenue generation and improve the livelihoods of those involved. By directing supporting the trade of MPPs, the government can create an environment capable of reducing unemployment and setting up a new industry to foster economic growth.

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