

## Essential oils value chain in Tunisian forests: Conflicts between inclusiveness and marketing performance

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### Résumé :

Le marché tunisien émerge pour profiter de la croissance prometteuse du marché international des différentes huiles essentielles (OE). Cependant, de nombreuses contraintes ont limité les exportations tunisiennes, qui sont en grande partie liées à la faiblesse de la chaîne de valeur et de l'offre. L'objectif principal de cette étude est de présenter la relation entre les stratégies de marketing mix et les performances des différents types d'entreprises exportatrices. Plus précisément, nous analysons les stratégies de mix-marketing et les déterminants des performances des entreprises exportatrices des huiles essentielles. Il y a un intérêt croissant au commerce international des HE en raison de leurs diverses utilisations. En effet, la Tunisie est dotée de vastes ressources de plantes aromatiques, principalement de romarin et de myrte dans les zones forestières. L'exportation des HE représente 1% des exportations tunisiennes en 2014. Sur la base de la demande globale du marché, cette étude présente des nouvelles stratégies d'expansion du marché, en se basant sur des entretiens avec les exportateurs et transformateurs des HE tunisiens. Des recommandations ont été élaborées pour augmenter la compétitivité de l'industrie des HE afin de surmonter la forte concurrence sur le marché international.

**Mots-clés:** Huiles essentielles, exportation, Marketing, performance, Marketing mix, stratégie, Tunisie.

## Abstract

A Tunisian domestic market is emerging due to the opportunities created by the high value international markets for various essential oils (EO). However, many constraints have limited Tunisian exports, largely related to the weakness of the value chain and supply. The main objective of this study is to present the relationship between marketing mix strategies and the export marketing performance of exporting firms for different types of firms. Specifically, we pay attention to the importance of specific firm characteristics in determining the export marketing performance of essential oils firms. There is a growing interest in trading EO worldwide given their various uses. Tunisia is endowed with vast resources of aromatic plants, particularly rosemary and myrtle in forest areas. Apart from the traditional ways of using these plants, many are exported as EO to industrialized countries. In fact, EO export represented 1% of Tunisian exports in 2014. Based on the global market demand, this study addresses the constraints and opportunities for market expansion, which were supported through interviews with Tunisian EO exporters and processors. Recommendations have been elaborated to improve the EO industry in order to compete in the international market with new marketing strategies and opportunities.

**Keywords:** Essential oils, export, Marketing, performance, marketing mix, strategy, Tunisia.

## 1. Introduction

Tunisian flora includes wild plant species that represent an important source of natural products such as Essential Oils (EO) and aromas which are vital to the agri-food, pharmaceutical and cosmetics industries. Compared to developed countries, which are mostly major essential oil consumers, Tunisia has comparative advantages for producing and exporting these products. The wide range of favourable agroclimatic conditions available in Tunisia make it an ideal source EO. EO extracted from wild plants are commercialized in small quantities but the value added is very high. This opportunity has attracted attention from private enterprises in Tunisia. While these products represent significant export opportunities, EO production is still limited by many constraints largely related to production and product development, funding and marketing strategies.

Why EO? Production is suited for small and large-scale production and processing units in Tunisia. These products enable companies to diversify their exported products instead of relying on a few commodities for export earnings (TIPS & AusAID, 2008). Furthermore, they could attract many enterprises as various EO are an important component in the production process of other products. In addition, trading in EO could be the keystone to promote development and improve the livelihoods of forest populations.

It is worth stressing that Medicinal and Aromatic Plants (MAP) are mainly harvested in forest areas where about 46% of local habitants are poor (GDF/GIZ, 2012). They are usually working in different employment activities in the EO value chain. Since 1995, the government has implemented various incentives for developing micro-scale associations at local level. However, the latter were confronted by many limitations related to the lack of adapted equipment, lack of know-how, difficulties of distribution and the absence of contacts and partnerships between companies and these groups (Daly-Hassen et al., 2005). Contrarily, the EO enterprises have very high profitability indicators giving their large experience and their market control. Daly-Hassen et al. (2005) suggested a complementary relationship between different stakeholders (the State controlling forest resources, the producer groups and the enterprises) in order to enhance the EO value chain and to improve local livelihoods.

The General Directorate of Forest (GDF) and Ministry of Agriculture (MA) has made significant investments to improve the productive capacities and business skills of

smallholders and local enterprises producing EO in Tunisia. Meanwhile, small firms can face difficulties to defend their interests compared with larger firms. Therefore, small firms are facing various difficulties to get in the international market of essential oils, where the negotiation power is held by few larger exporting firms.

Value chains present an analytical and diagnostic tool to identify the remunerative income-earning opportunities for smallholders and local populations particularly those living within forest areas. Smallholders and new startups must find niches in which they can compete effectively in the rapidly growing urban, rural and export markets. With highly competitive and increasingly global agribusiness markets, large firms start driving changes in agricultural value chains in order to reduce costs and boost profits by upgrading production and market share, reducing the number of suppliers they deal with and supplier prices as well (Reardon and Timmer, 2007). Recently, policy makers have focused on increasing opportunities for the poor instead of improving the competitiveness of supply chains (Altenburg, 2007). This shift between competitiveness and inclusiveness began in the 1990s with economic liberalization, which reduces the direct government involvement in various agricultural markets. Indeed, large exporters and firms are increasingly penetrating rural economies especially in the developing countries. This alters the scale and structure of rural supply chain (Haggblade, 2007). The author reported that while large companies open up opportunities for small rural suppliers to access new markets, they expose them at the same time to various threats given the risk of excluding undercapitalized rural enterprises on which the rural poor often depend (Haggblade, 2007).

The notable opportunities that motivate large firms lead to modify value chain structure and distributional outcomes that are not inherently pro-poor. Responding to these changes in agribusiness supply chains, various policies have been devised to make the latter more inclusive and pro-poor (Vorley, 2001; Vellema, 2010). In fact, the pro-poor value chain development approaches include all interventions that lead to overcome challenges and seize opportunities that can benefit the rural poor (Stamm and Drachenfels, 2011) taking into account both competitiveness and equity issues (Altenburg, 2007). Therefore, the main objective of developing pro-local population value chains is to take into consideration higher income wages for poor population and most vulnerable actors (women, young). In which channels and competitive niches can the micro firms and new startups compete? How can they adapt to upgrade their productivity and get into the international market? How can large firms and SMEs prove complementarity?

Due to the dynamic world business environment of EO, the goals of economic profitability and growth are increasingly difficult to achieve by Tunisian firms. The latter are facing important competition among themselves and from highly efficient foreign companies. Being competitive abroad and developing existing markets requires efficient export marketing and growth strategies. Recently, Tunisian firms have started to look beyond their traditional markets and concentrating on high export markets. The Tunisian forest directions promote EO exports by encouraging the creation of new startups. In this regard, small-scale producers are supported to access the international EO market by developing inclusive value chains, which in turn would improve the livelihoods of the local populations in forest areas. Can this support to micro firms contribute to inclusive economic development in producing areas of EO in Tunisia?

It is of crucial importance to understand the determinants of export performance success for EO in order to achieve improvements (Govindasamy et al., 2011). This requires analysis of the antecedents of the export marketing performance of Tunisian firms specialized in EO production. The main objective of this paper is to identify the determining factors for exporting performance amongst Tunisian firms. Complementarities between marketing mix strategies and the marketing performances of exporting firms of different sizes (micro, small, medium and large) are also analyzed. The research then aims to identify drivers and barriers for developing Tunisian EO market and new growth strategies enabling the sector to become more competitive in the international market. Finally, some policy recommendations based on our research results are derived to promote inclusive economic development or substitute it.

The paper is organized as follows: The next section presents the extent of aromatic and medicinal plants in Tunisian forests. After that, an analysis of the market trend in trading EO is given. Then, the third section presents the conceptual framework of this study. Section four describes the methodology used and the section five discusses the main results. Finally, this paper ends with some recommendations about marketing strategies.

## **2. Aromatic and medicinal plants in Tunisian forests**

An EO is a product that is distilled based on water or steam. Extracts are coming mainly from the leaves, stems, flowers, seeds, fruits or other elements of a plant. A large number of EO are obtained from agricultural plants, but a considerable number of oils are collected from wild sources. Different technologies are available to extract EO from 3000 plants of which approximately 300 are of commercial importance (Ciesla, 1998). Wild harvested medicinal

and aromatic plants are found over extensive areas and dominate the EO extraction in Tunisia. Rosemary and myrtle are the main wild harvested aromatic plants in Tunisia to extract EO. The rosemary and myrtle are considered of strategic importance by the GDF. These plants are the most important distilled forest plant in Tunisia. While rosemary EO is mainly produced in semi-arid regions, particularly in the center and north-west of Tunisia, Myrtle oil production is mainly concentrated in the mountainous regions of the north-west of the country. The exploitable area was evaluated in 1989 (The Forest Management Board, 1989), about 346 000 ha for rosemary and 80 000 ha for myrtle over a forest formation estimated at 1 044 000 ha in 2001.

Production is mostly coming from lands controlled by the State: resource use rights and harvesting of rosemary and myrtle are subject to a public tender (Article 18 of the Tunisian forestry code) organized each year by the Tunisian Forestry authority for private firms to exploit 120 000 ha. Processing operators and private firms encompass the harvesting operation in collaboration with the local forest population who primarily carry out the operation of distillation and processing. The Tunisian market of EO is very concentrated, which consisted of only 12 companies.

Aromatic and medicinal plants remain under-valorized in Tunisia. Currently, only a small part of the tendered area by the GDF is contracted and harvested. Accordingly, for the period 2000-2015, only 63% and 34% from the potential of rosemary and myrtle are exploited, respectively. Moreover, other plant species are identified by their potential of EO, but still not harvested. The local population represents the principal hired workforce to collect the plants and may also collect plants for local use on small territories as part of small familial projects and startups. People living in forest areas are estimated at 800 000 persons, representing 8% of the country's total population (GDF, 2015)

EO obtained from wild sources are generally commercialized in low volume and with high prices, which can ensure important revenues for rural communities. EO processing are not only adequate for big producers, but they are also profitable for small-scale production and families in forest areas. Besides, prospecting new markets would offer important opportunities for Tunisian firms to diversify its export portfolio and to attain effective gains. EO are mainly used in four broad sectors: flavor, pharmaceutical, personal care and industrial. These products display important features. They require very little storage space without refrigeration and they are very cost-effective. Most EO are overwhelmingly produced by

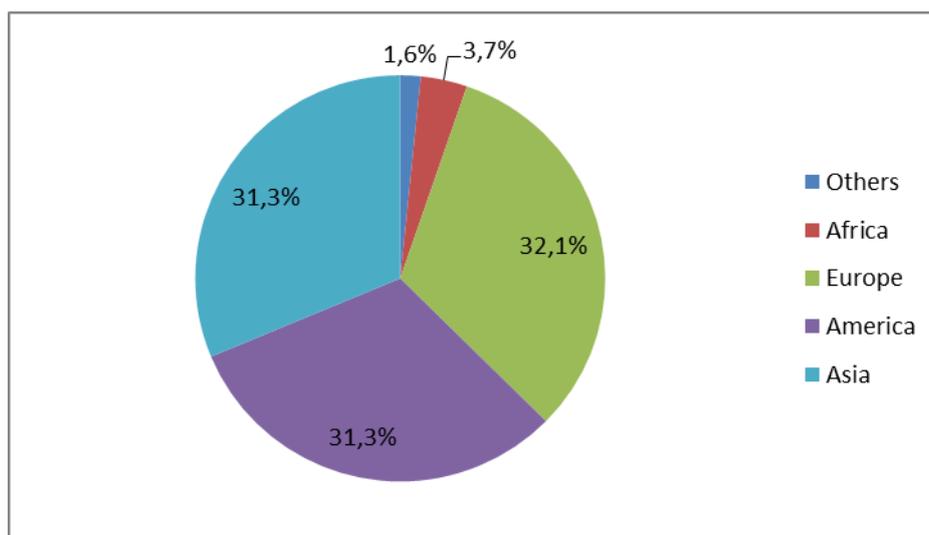
small farming units. This sector contributes substantially to ensure the livelihoods of rural populations.

The Tunisian government is promoting the SMEs to support inclusive economic development and poverty reduction within the forest areas. There is a growing demand for higher-value agricultural products, which presents new opportunities for SMEs that specialize in EO production. These firms employ a large number of people who are living in rural communities which could justify the importance of support programs provided by Tunisian banks and government. In this context, these programs are devised to facilitate financial loans or small credits access and advocating general reforms to the investment climate. However, these forms of support may benefit larger enterprises as SMEs are struggling to access the necessary management skills and do not have sufficient guarantees to have credits.

### 3. Market analysis

International trade in EO amounted to 9511 US\$ 1000 in 2016 (International Trade Center (ITC), 2017). It has increased during the last decade either in terms of exports with an average annual increase of 9%, or imports, with an annual growth of 8% from 2004 to 2016. The European countries play an important role accounting for 32% of global exports (figure 1) and almost 40% of imports of EO in 2016 (figure 2). However, its market share has been decreasing in the last ten years.

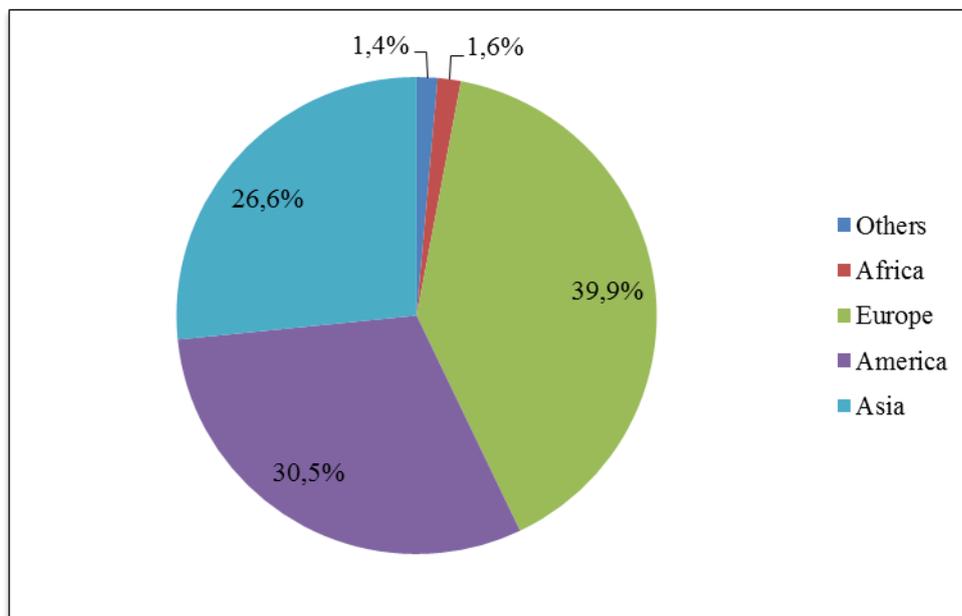
**Figure 1. Region's share of EO export value in 2016**



Source: Authors' calculation based on International Trade Center and UN COMTRADE statistics

In 2016, global imports of EO from wild plants amounted to 4733US\$ 1000 recording annual average growth rate of 8% from the year 2004. In 2016, the EU is the largest trader of EO accounting for 40% of world import (figure 2). Overall EU trade was valued at just about 3425 US\$ thousands, with imports outweighing exports. America and Asia are the second and third most important traders of EO, accounting respectively 30.5% and 26.6% of worldwide import of EO (figure 2).

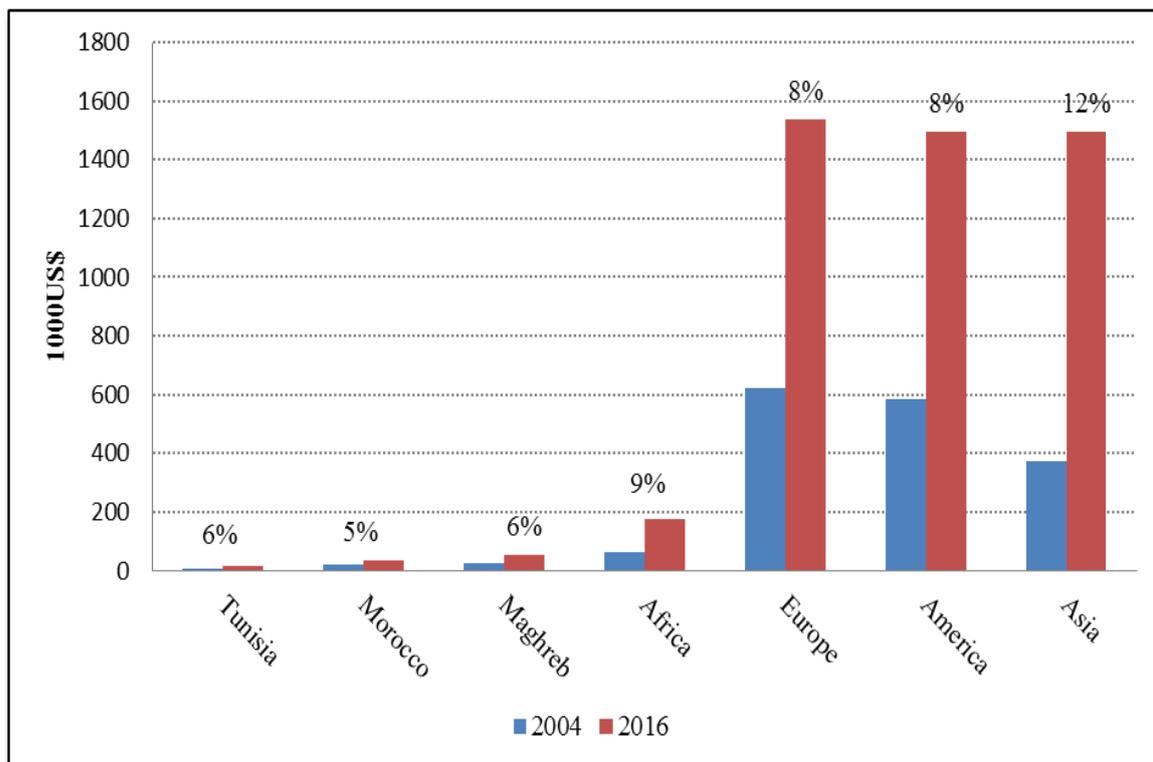
**Figure 2. Region's share of EO import value in 2016**



Source: Authors' calculation based on International Trade Center and UN COMTRADE statistics

It is worth noting that Asian exports are rapidly increasing with an average annual growth of about 12% in 2004-2016 (figure 3) leading to expand its market share at the expense of other countries (e.g., the USA). A first analysis of the global data shows a change in the geography of trade flows in EO, with the emergence of Asian countries, which are the most important supplier of the international market. The European imports are increasing similarly with an average annual growth of 7% in 2004-2016 (figure 4).

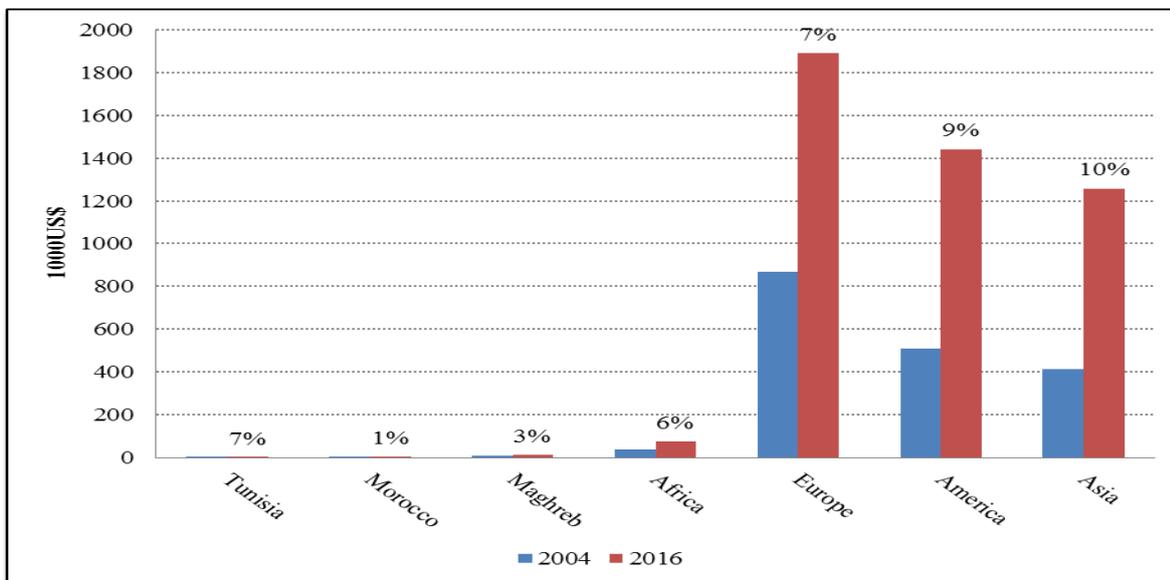
**Figure 3. International export of essential oils (2004-2016)**



Source: Authors' calculation based on International Trade Center and UN COMTRADE statistics

Tunisia is the main producer of rosemary and neroli in the World. In 2016, rosemary and myrtle EO exports represent respectively 30 % and 2% of Tunisian EO exports behind neroli and oranges, which together represent 56%. The relevant growth that this sector has experienced since 2004 can be attributed to increase in prices especially in 2014. Given the importance of export value growth in 2014, the EO become the major forest product export in Tunisia.

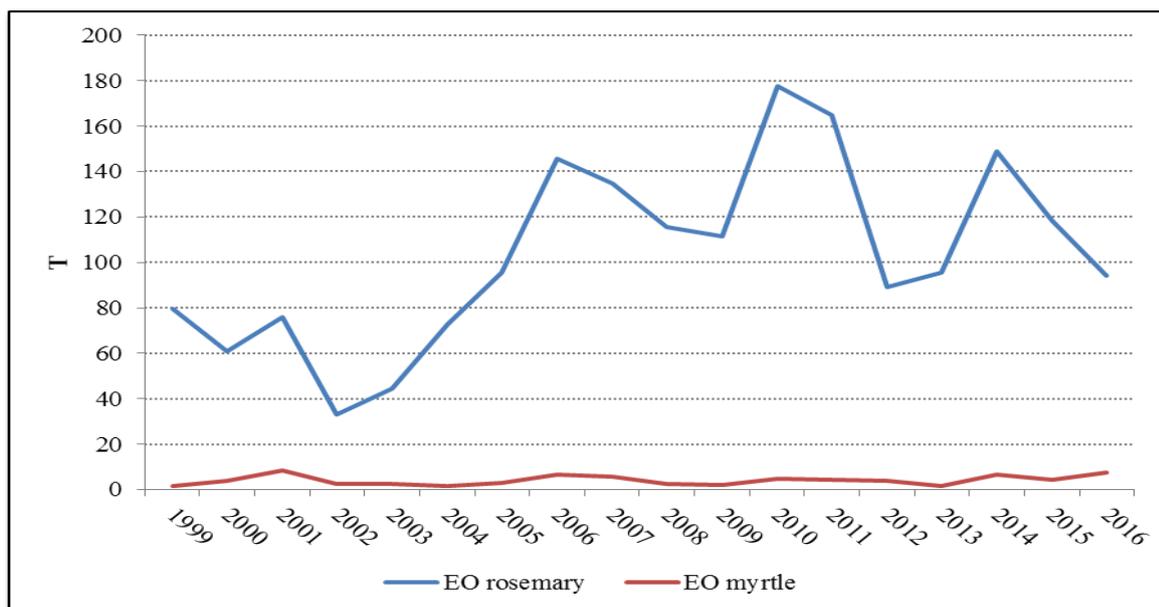
**Figure 4. International import of essential oils (2004-2016)**



Source: Authors' calculation based on International Trade Center and UN COMTRADE statistics

Figure 5 shows the evolution of Tunisian export quantity of rosemary and myrtle EO for the years from 1999 to 2016. It can clearly be seen that there has been a large increase in the rosemary EO export especially from 2001-2006 with an important fluctuation over the following years.

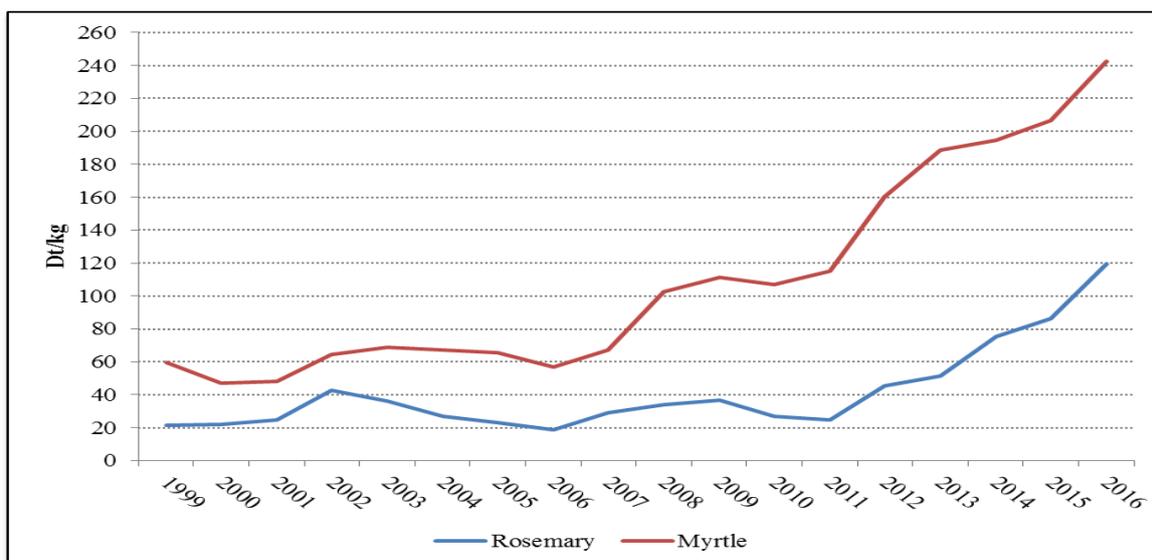
**Figure 5. Tunisia export quantity of rosemary and myrtle essential oils (1999-2016)**



Source: INS, 2017

Figure 6 depicts the variation of prices of rosemary and myrtle EO during last 15 years (1999-2016) indicating that prices rose steadily after 2007 and reached their peak in 2014 for both products. In fact, the price of raw materials fluctuated widely around an increasing trend. This can be explained by various factors in relation with new consumption trends and the growing demand for EO at the international market. Other factors related to the availability of natural resources, drought and forest fires can justify the upward trend in export prices of Tunisian EO.

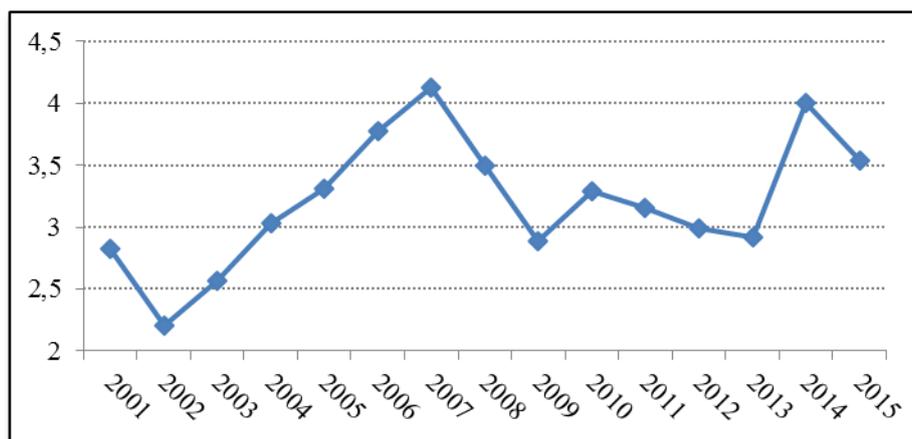
**Figure 6. Prices variation of rosemary and myrtle essential oils (1999-2016)**



Source: Authors' elaboration based on INS data, 2017

The business world is a dynamic environment, which makes the achievement of high profitability and fast growth difficult for Tunisian firms. Despite the important reserve of natural resources of Medicinal and Aromatic Plants, exporters of EO in Tunisia face changing market conditions and economic hardships. Although the national production is highly dependent on climatic conditions, Tunisian EO sector continues to have a comparative advantage in comparison with other producers (figure 7).

**Figure 7. Revealed Comparative Advantage (RCA) EO Tunisia**



Source: Authors' elaboration based on International Trade Center statistics

#### 4. Research framework

The export marketing strategy is recognized among various factors as the main determinant of export marketing performance (Cavusgil and Zou, 1994). This performance depends on the product-specific attributes, the firm-specific characteristics and export market characteristics (Cavusgil et al., 1993; Dominguez and Sequeira, 1993; Diamantopoulos and Schlegelmilch, 1994). Furthermore, the marketing mix strategy of an export firm is defined by both internal factors and external forces in the business environment. Therefore, export performance relies upon three elements: The export marketing mix strategy adopted, firm characteristics and external environment elements.

This paper focuses on three key characteristics of exporting firms: product uniqueness, international experience of the firm and resource commitment. The international marketing environmental factors broadly gear companies' decisions and strategies. Hence, the business model and marketing strategies of exporting companies are influenced by the international

marketing environment of the global supply chain (Christmann, 2004). Firms in international markets are facing a wide range of constraints which require a deep understanding of the environment and its influences. These factors are classified into three categories: global factors, domestic factors and firm factors. The former includes technological changes, economic and competitive forces.

By analyzing the international environment, it is important to determine factors and variables that could influence the enterprise supply and demand levels and its costs (Johnson et al., 2008). The main objective of analyzing the impact of each factor on the business is to take advantage of opportunities and presenting contingency plans for threats when preparing business and marketing strategies or recommendations (Byars, 1991; Cooper, 2000). International marketing strategies of exporting firms of EO are designed based on marketing mix strategies and in accordance with all involved factors in the international marketing environment.

The success of an international marketing strategy depends on the economic conditions. Demand may exist or increase for a product when the economy is growing without depressed circumstances (Thompson, 2001). The political environment and government policies can influence the economic conditions providing both opportunities and threats. Other environmental forces that can affect companies are closely related with economic conditions such as the social and technological environment. The socio-cultural environment includes demand tendencies and tastes (bio products, AOC, natural...), which forms both opportunities and threats for particular firms. Thus, exporting firms should be well informed about international demand tendencies to avoid being in a situation of high competition. Besides, adopting new technologies (stainless steel distiller for plants) could be an important input to guarantee a continuous product development, high quality and creating competitive advantage for exporting firms. However, purchasing new technology could present an important cost for companies (funding and employee training). Various regulations can affect the business environment of certain firms, for example: sales law, new standards, etc. The environmental factors include all those that influence or defined by the surrounding environment.

The characteristics of a product can influence the export marketing performance of the firm (Cavusgil et al., 1993). Indeed, the marketing performances of exporting firms are widely influenced by the product's attributes/characteristics and the competitive advantage of the firm (Day and Wensley, 1988). The product characteristics encompass various specificities

such as the strength of patent and product uniqueness (Cavusgil and Zou, 1994) which is very important to improve the differentiation advantage of the exporting firm in a competitive market. Furthermore, the differentiation advantage could be improved by offering a viable product with better quality and high reliability respecting at the same time the culture of the foreign market (Vern et al., 2000; Terpstra, 1987)

In addition to the firm specific characteristics, environmental characteristics are argued to affect the marketing performance (Cavusgil and Zou, 1994). In fact, the export marketing performance is determined by environmental characteristics such as: the legal and regulatory policies in the producing country, the amplitude of competition and well-established distribution and communication channels (Christensen et al., 1987; Contractor, 1990; Blodgett, 1991; Ganitzky et al., 1991)

To do so, some hypotheses are formed: First, we assume that environmental characteristics have a significant influence on export marketing mix strategy and export marketing performance. In addition, firm characteristics, i.e. firm experiences, commitment and size may have an impact on export-marketing performance and mix marketing strategies. For instance, we assume that promoting micro-scale firms could increase export-marketing performance. Furthermore, we test the hypothesis that marketing mix strategy is a key factor to enhance export-marketing performance.

## 5. Methodology and data

Export marketing performance and Business strategy are assessed through surveys with various actors and public bodies involved in exporting EO. The questionnaire was administered to firms having different scales in terms of export and production. These firms exploit together half of harvested areas in Tunisia and export almost the totality of their production of EO<sup>1</sup> (Table 1). The survey focuses on the constraints faced by firms in elaborating an efficient export marketing strategy. We also collect data about production and characteristics of commercialized Tunisian EO in the market. Various interviews and meetings were conducted with the General Directorate of Forests (GDF) to present the “constraints on” and “opportunities for” expansion of the EO sector. Based on the framework described above,

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<sup>1</sup> All surveyed firms are exporting their total production to international market, except micro firms who target only the Tunisian Market

some recommendations will be presented in the next section to overcome the constraints and to make profit of opportunities.

**Table 1. Distribution of exploited area by the surveyed enterprises**

Scale of surveyed firms	Large	Medium	Small	Micro	Total Harvested area in Tunisia
Harvested area in forests (Ha)	30413	7392	3830	50	85200
%	36	9	5	0.1	100
Target market	International			National	

Source: author's elaboration based on GDF data

To describe the external business environment of exporting firms of EO in Tunisia we use Political, Economic, Social, Technological, Legal and Environmental analysis (**PESTLE**). PEST is a market analysis tool and the most common approach to describe a framework of macro-environmental factors for a company (Kotler, 1998). It is also referred to as, STEP (Clulow, 2005) or SEPT (Narayanan and Fahey, 2001). PEST evaluates company's performance to identify the powerful forces that are affecting the industry environment (Porter, 1985). PESTLE is an expanded version of PEST analysis denoting "L" for Legal and "E" for environmental.

Marketing strategies and competition are shaped by five competitive forces. The configuration of these forces differs by industry. Porter's five forces model is adapted in this study to evaluate the competitive strength and position of Tunisian marketers of EO. It is a simple framework based on the concept that there are five forces which control the competitive intensity and attractiveness of a market. This tool is very useful to understand the strength of a company's current position. This theory can also be used to mitigate weaknesses of exporting companies. In order to analyze a strategy, it is of considerable importance to have enough knowledge about the sector in which the firm operates. The five forces framework provides a strategic analysis when profit criteria may not apply (Johnson et al., 2008). Porter's five forces model identifies four forces that characterize the level of competition within a sector: bargaining power of Supplier, bargaining power of buyer, threat of substitutes and threat of new entrants (Porter, 1979a). A successful company could deal with the interaction of these forces. The force "Rivalry among existing competitors" regroups

various forms of competition such as price discounting, new product introductions, advertising campaigns and service improvements (Porter, 2008). The attractiveness of the market decreases when competitors start offering undifferentiated products and services. The industry growth rate, the number of companies in the market and fixed costs could influence this force (Slater and Olson, 2002; Hubbard and Beamish, 2011)

Profitable markets attract new entrants, which squeeze firms margin of existing companies. Unless experienced firms have strong and tough barriers to entry such as economies of scale, capital requirements or government policies. The profitability will decline to a competitive rate. These entry barriers limit the number of companies in the industry and influence the 'Rivalry among existing competitors' (Johnson et al., 2008). New entrants to the industry bring an additional supply for the same demand which influences the profit of the market participants and affect directly the competitive advantages. Porter (1979a) distinguished six significant barriers to enter the market: (1) Economies of scale (2) Product differentiation (3) Capital Requirements (4) Cost disadvantages (5) Access to distribution channels and (6) Government policy.

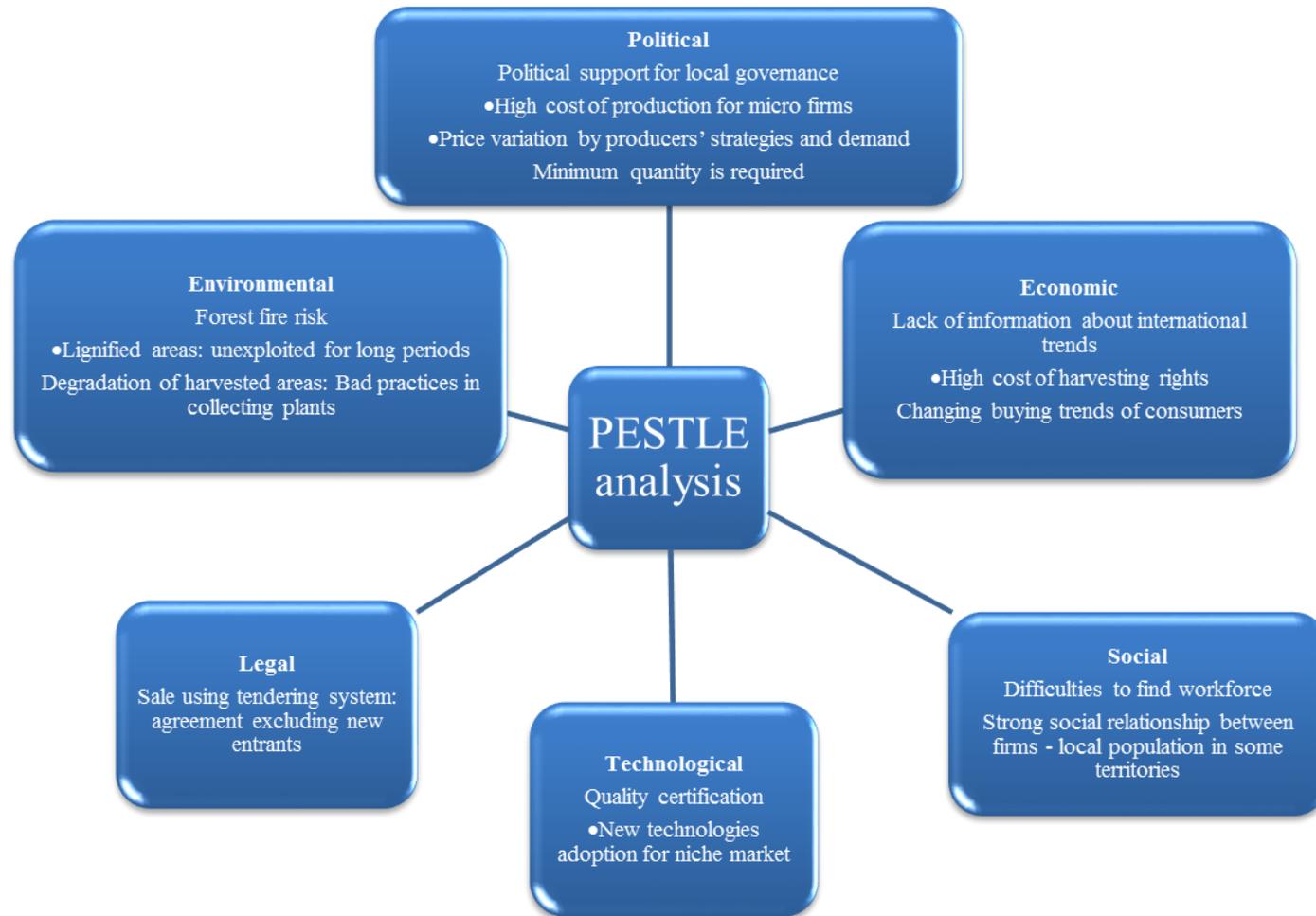
The Bargaining Power of Supplier is determined by the easiness of driving up prices, the number of suppliers of each essential input, the uniqueness of their product, the size of the supplier and the cost of switching from a supplier to another (Slater and Olson, 2002). Indeed, a powerful supplier can catch profitability of companies when they cannot control cost increases in its own prices (Porter, 1979b). Founding substitute products with the same functions reinforce the buyer capacities to define a cap for the prices. By offering a differentiated product, the identification of substitutes that can fulfill the same function became harder. There are several factors that can influence the threat of substitutes such as switching costs between substitute products and industry products (Hubbard and Beamish, 2011; Klemperer, 1995)

## **6. Results**

The main results obtained from PESTLE analysis are presented in figure 8. Regarding the political factors, government policies and regulation could influence the market either directly or indirectly. The EO industry in Tunisia deserves to gain a bigger political support. Moreover, the interviewed firms highlighted that the intervention of government to develop the local governance is indispensable in order to improve the economic efficiency of micro producers and to sustain the production activity. In fact, the political support is necessary especially in the case of small firms and startup companies.

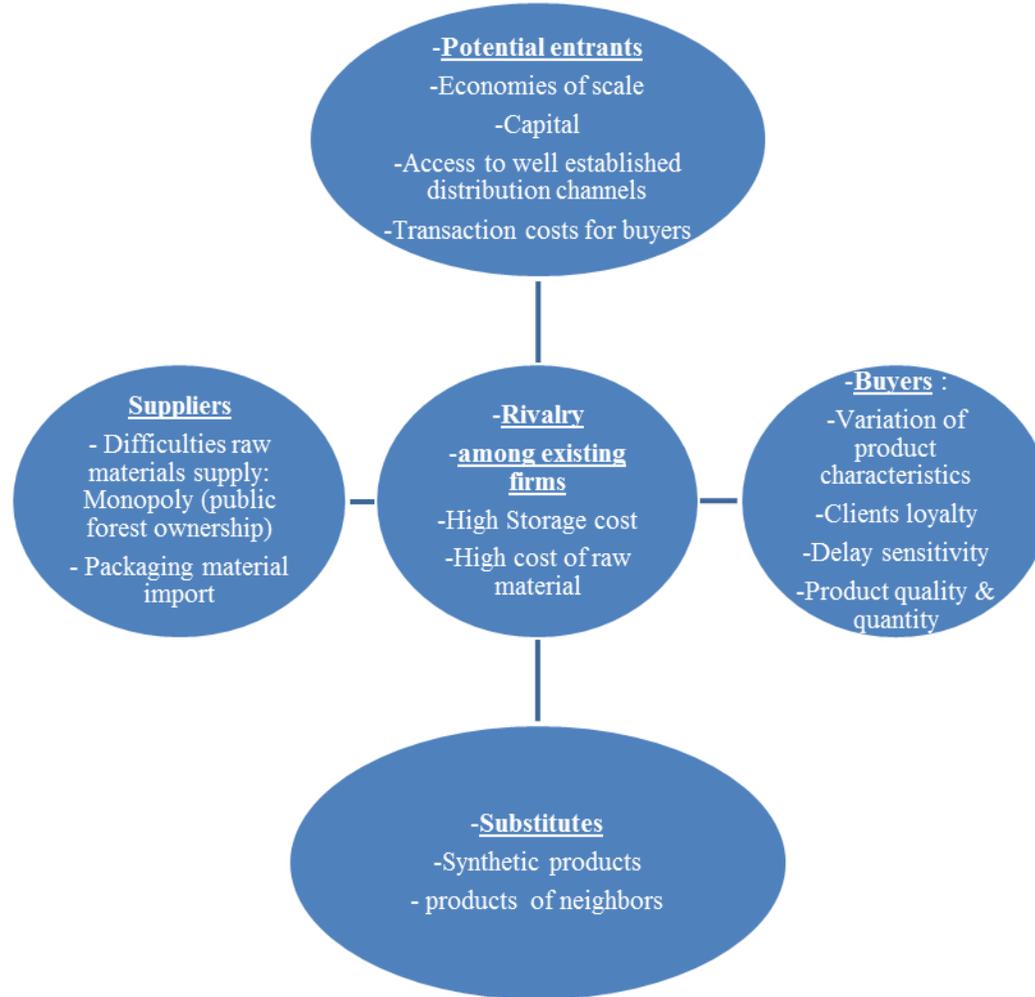
Essential oils value chain in Tunisian forests

Figure 8. PESTLE analysis



Source: Authors' elaboration

Figure 8. EO sector in Tunisia: Rivalry forces



Source: Authors' elaboration

Among economic factors, controlling production influences costs and overheads represents a major goal for all exporting firms in Tunisia. These costs are still complex and difficult to control especially for small sized firms. The EO production process is labor intensive due to collecting and distilling activities of the aromatic and medicinal plants. An interesting finding is the marketing abilities of firms to produce a high quality of EO which becomes a prerequisite to warrant their viability involving markets. Besides, offering high quality products at the international market could enhance the competitiveness of EO sector and overcome logistics and transportation problems. However, low added value generated at the production level is constraining small firms to take advantages of many trade opportunities. Besides, the volatility of global markets and prices make exporting Tunisian EO to foreign markets too difficult.

The issue of quality could represent an important barrier to enter into the EO industry. European markets are imposing rigid quality standards which require modern equipment to get the desired quality level. Further, the storage material of the product plays a key role to comply with quality requirements. The production of EO in Tunisia is still based on traditional production infrastructure and investments efforts are very limited. We find evidence that the EO value chain involves a great number of small sized units and production remains as independent activities starting from the extraction of AMP, processing and distillation then trade and marketing of final products. In addition, distribution channels are not organized with the presence of too many intermediaries. The presence of several stakeholders and small producers in the AMP sector sometimes results in overlapping and reduce transparency due to lack of coordination (GDF, Professionals, Research institutes, local population ...). Firms advocated that the commercialization of EO in the domestic market is very limited and ignored by AMP sector professionals. Unlike other sectors, the AMP sector is neglected given the absence of encouraging government programs aiming at promoting exports and investment.

With respect to the social factors, there are different production concerns about the loss of AMP collectors and the high cost of capital equipment. Indeed, large firms are facing a major problem due to difficulties to find workforce. It happens many times that firms spend money buying harvesting rights without finding the workforce in the exploited area. The absence of collectors is mainly explained by the aging of the local population and the seasonality of EO extraction: The processing units are active only for few months of the year.

Nevertheless, there is a strong social relationship between firms - local population in some territories.

Among the technological factors, the present analysis reveals that the lack of advanced and specialized technology would reduce the competitiveness of firms especially at the national market. Advanced production techniques are important to guarantee high quality products and avoid buyers' rejection. By adopting new technologies, Tunisian firms can keep the leader market position particularly in a niche market.

Besides the absence of a consensual development strategy for the AMP sector, the existing regulations are not rigorous enough to enhance the development of this sector. Moreover, using tender system to exploit wild plants area often excludes new entrants which can improve the competitiveness of the sector and exploit other plant species (e.g., lignified areas are unexploited for long periods).

From an environmental point of view, Tunisia is very rich in agro-biodiversity. There are different ecosystems in such small area that could offer favorable ecological conditions. Further, 'Tunisian's AMP' reputation is recognized at the international level. On the other hand, forest fire risk presents the major threat for the EO production. Finally, bad practices in collecting plants may result in loss of biodiversity and destruction of habitat.

## **6.1. Marketing strategies for Tunisian EO sector**

In order to expand EO business to foreign markets, it is necessary for Tunisian firms to have solid mix marketing strategies. Examining marketing activities of Tunisian exporting firms of EO allows identifying the relevant factors that ensure higher performance of exporting firms. Marketing mix decisions should be in coherence with business strategies. The success of exporting EO is determined by the marketing mix elements (product, packaging, price and promotion) which are of strategic importance to control the market. The following lines present different marketing mix strategies and evaluate export-marketing performance of Tunisian firms.

### **6.1.1. Micro firms**

EO exporters in their initial stages of export are mostly the marketers of a very large range of products. These products are mainly extracted from common natural resources rather than research and development efforts. Their efforts are concentrated in product development in terms of variety, packaging and branding. The export of these firms seems difficult due to

lack of compliance in terms of quality and quantity and given the low prices offered at the international market which are often below their cost of production. Various concerns are evoked regarding the cost of capital equipment, the lack of public incentives and funding. Furthermore, difficulties to analyze the quality of produced EO and limited knowledge of certification and international standards prevent them to better control the quality and costs. They do not have their own quality-control laboratories, which increase the production cost for this category of producers.

Also lack of access to information with regard to preferences of foreign end users, particularly European and American consumers, and looking for an inventory of most purchased products abroad are the major problems for these firms. They recognized the importance of more efforts to promote Tunisian products in high markets demand. They sell a large number of goods in a niche market. The small-scale producers are commercializing their products avoiding competition from large firms in market place. Massage centers and some final consumers are the main destination for their products. Indeed, they develop new products with new product range and new product line (soap, dried plants...). This strategy allows enhancing sales and substituting the outdated products. However, this category of producers does not exhibit the required skills for product management (product design, new packaging, quality certification and brand building. Small producers try to associate between price and quality without over pricing. Prices of all commercialized EO are determined based on other producers' prices. Besides, they have a strong social relationship at territorial level which reinforces their export capacities.

### **6.1.2. Large firms**

By examining the internal firm environment, our analysis suggests that the larger the size of the enterprise the more likely it is to adopt a standardized marketing mix strategy approach. By offering high quality of EO, exporting firms focus on a standardized marketing strategy without making efforts in promotion and advertisement. Therefore, the firm's attempt to deal with clients retaining by ensuring high quality and avoiding delay sensitivity. The firm's size and the uniqueness of the product significantly influence export-marketing performance. Hence, these firms are internationally competent with important resources. They are enjoying of high accessibility to the most attractive market and adapt their strategies to meet the needs of the export market. It is worth noting that the firm's ability to plan and its managerial endowment play an important role to gain access for other clients and markets.

## 7. Conclusion

There is a growing interest worldwide in using EO as natural remedies as alternatives to medicine. The demand for AMP is rapidly increasing given its various benefits for human consumption. On the other hand, these benefits have drawn broad research interest to increase productivity and quality of AMP. Tunisia has a very encouraging free trade agreement with Europe which presents an opportunity for the AMP sector. The main objective of this study is to examine the potentialities of EO in Tunisia and presenting new marketing strategies to become more competitive in the international market. Particular attention is given to the importance of specific firm characteristics in designing marketing mix strategy.

National firms and large processing units should start grouping the small national and local production units. Large companies can help SMEs to grow and become more competitive through more corporations and creating more effective and inclusive supply chains. Besides, Mix-marketing strategies can be developed in participatory ways including all stakeholders involved in EO value chain. These strategies would account for consumers' needs and expectations (authenticity, development of niche products...), evolution of offered products, sector internationalization and distributors increased power.

Our results suggest that specific firm characteristics and the environment influence overall export marketing performance. It is important for EO exporting firms in Tunisia to be aware of the international environment and specific competitors' characteristics. Quality promotion and price control are critical for successful export marketing performance. Indeed, firms could achieve better marketing performance by offering differentiated EO with high capacities to ensure requested quantities in time. Micro firms can benefit from strategic alliances by establishing direct contact with key distributors. SMEs can build long-term supply relationships and strategic alliances with specialty stores. Small producers of EO can get into the market by prospecting small industries such as aromatherapy and massage centers. Micro firms engaged in the EO sector need to reinforce their market knowledge and organize themselves to face competition in the international market.

### **Conflict of interest**

We declare that we have no conflict of interest.

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