

## Short Term Scientific Mission Report

COST Action: FP1203

### Medicinal and Aromatic Plants in Greece. Potential improvements on forestry management practices

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### Background

Medicinal and Aromatic plants (MAPs) have always been strongly connected to peoples' livelihoods both as part of what is usually termed as traditional or folk medicinal practices and subsistence, but also as an important part of contemporary lifestyle and the pharmaceutical industry. Nonetheless, harvesting of wild species has been a practice deeply embedded in the livelihoods of local communities not only as an enjoyable recreational activity but as an important supplement of income as well. It could be said that harvesting of wild species is long and deeply connected both historically and culturally with places and local communities.

On a global scale a continually growing market demand for MAPs has been noted. However, the supply comes mostly from wild harvested sources (Bodeker *et al*, 1997). Cases of overexploitation of MAPs are commonly found in relevant literature and the need for promoting their sustainable wild collection and use is particularly stressed. As Lange remarks, it is the high demand in an international scale that could render the utilisation and commerce of wild plants problematic and not the supply needs of the local communities (1997).

Habitats of such species found in Greece, have also been recognized as threatened during the last years. An over-exploitation of wild harvested species appears (both of MAPs and wild mushrooms) that has consequently led to an imbalance of sustainable growth and harvesting practices. Late legislation concerning the harvesting and sustainable use of MAPs, appears to be inadequately formed as relevant directions have mostly emerged as a response to an already out of hand situation and are not integrated into an inclusive and well- designed management plan. Thus, in order develop scientifically based policy and to provide a guideline for sustainable management practices it is important to research the trade of MAPs and the pressure market demand is having on sustainable supply of resources.

An estimation of 45,000 tons of medicinal plants consumed in Germany each year makes it the market leader in Europe. According to statistics from the Federal Agency for Nature Conservation (BfN) around 1,500 types of plants are traded in Germany, in larger or smaller amounts. Germany also plays a leading role, acting as a link between Eastern

and South Eastern European market and N.W Europe (Lange 1997). As far as Europe is concerned an analysis of UNCTAD trade figures for 1981-98 shows that Germany has the leading role both as a country of import and export (Schippmann et al. 2006). Furthermore, the same seems to apply for the period 1991-2003, according to COMTRADE, with Germany importing 44,750 tons of MAP material and exporting 15,100 tons (COMTRADE database, United Nation Statistics Division).

## **Objectives**

The main objective of the study is to research the current trends of the market of MAPs, taking as a case study the city of Tübingen, in Germany. In particular, to identify common medicinal and aromatic plants that are included in the Greek legislation and are overexploited, gather information on the dynamics of their trade, supply channels, cultivation details and origin. Taking the above into account, it is expected to form an overview of current market trends that could inform management practices concerning the sustainable use of MAPs in Greece.

## **Methodological approach**

A preliminary research has been conducted in order to form the profile of Tübingen and indicate the main market trends of MAPs' trade and further literature review of relevant research fields have been conducted. A selection of medicinal and aromatic plant species that are naturally growing in Greece was formed on the basis of common use, cultural aspects, market interests and risks from over-exploitation. From that perspective, the species included in the research are: *Salvia officinalis*, *Thymus vulgaris*, *Sideritis scardica*, *Origanum vulgare*, *Hypericum perforatum*, *Boletus edulis* and *Cantharellus*. The traded raw material is processed in various forms, which makes the tracking of the ingredients literally impossible in many cases. In addition, the market includes manufactures that are highly varied, ranging from pharmaceuticals to cosmetics, food industry etc. Taking the above into account, it has been decided to approach the topic from the perspective of MAPs as individual ingredients of products such as herbal tea and infusions.

At that point field work was incorporated in order to form a guidance plan for data collection. For that purpose visits to retailers and companies involved in the trade of MAPs was conducted and relevant information was collected initially by semi-structure interviews when needed and secondly by information presented on the products themselves. The research included twenty three retailers and a total of 92 different products.

During the field work, it has been clear that desired information is usually not included on the packaging or was possible to be derived from interviews. At that point, there have been further telephone communications and email contacts in order to reach more knowledgeable sources of information.

The analysis of all data collected is presented below.

## Presentation of results

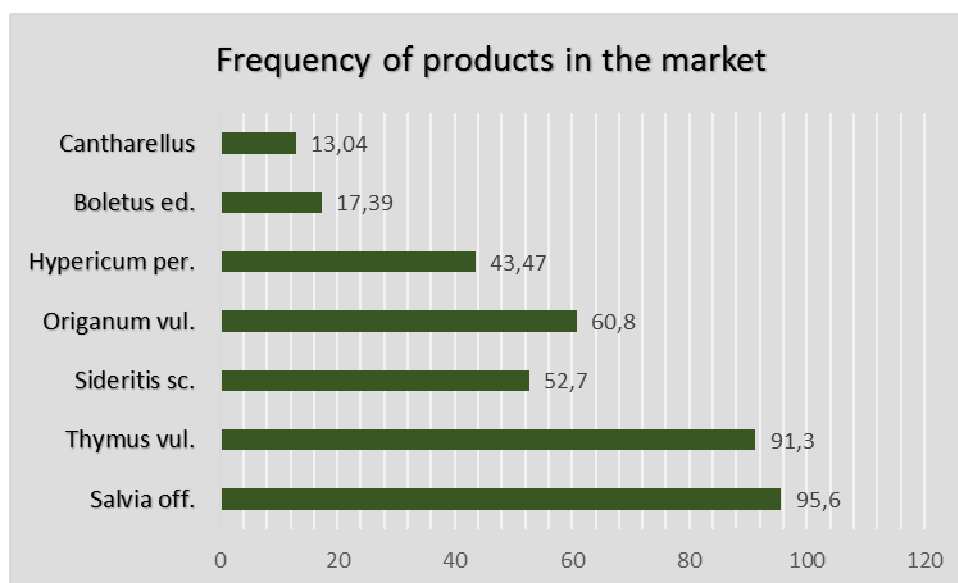
### Profile of Tübingen

Tübingen is situated in the south of Germany, 30 km south of the state capital, Stuttgart. Its population presents a steady growth through the last decades, reaching a total of 84.496 inhabitants during 2014.

Apart from big supermarkets and discount shops, Tübingen's market consists of plenty small retailers and organic shops. There is a noticeable demand for organic products, which is not only driven by health and dietary preferences but also from a growing concern for the environment, sustainability and working conditions of people involved in the production. It is reported that over 75% of German consumer's purchase organic food at least occasionally with the product regional origin, better animal welfare credentials, and lower pesticide residue levels, being the main reasons for doing so (AAFC, Global Analysis 2015). The Federal Ministry of Food and Agriculture in Germany also mentions that in 2014, Germans spent EUR 7.91 billion on organic foods and beverages, which represents an increase of around 4.8 % over the previous year (Stephan, 2015).

### Market trends

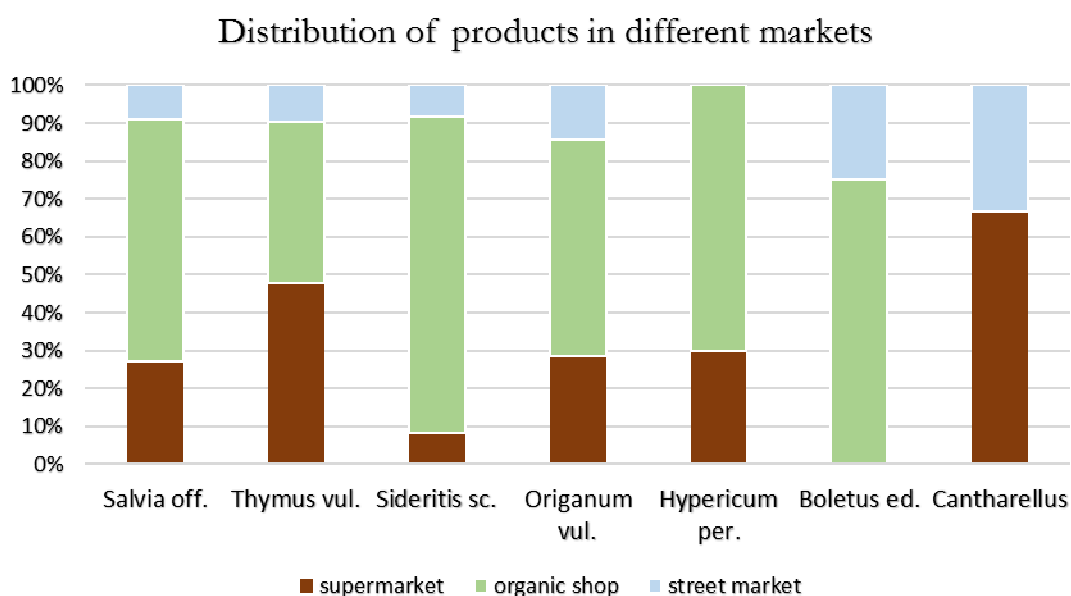
The market appears to have an increasing demand of MAPs. This upward trend is not only linked to the city's population growth but also to an increasing popularity for natural-based, eco-friendly products. As many retailers notice, there is a notable interest for herbal teas and consumers are interested in getting to know the uses of medicinal plants. All surveyed species were found in the market of Tübingen. As shown on the graph below, *Salvia officinalis* and *Thymus vulgaris* was the most regularly found, with a percentage of 95.6 % and 91.3 % respectively, followed by *Origanum vulgare* and *Sideritis scardica*. In particular, it has been noted that through the last years *Sideritis scardica* has become more popular and it was found in all small retailers of tea and herbs as a speciality one.



Graph 1 Frequency of each product in the market

In order to research the target group of these products analysis of the different types of markets where they are traded was made including the categories of supermarkets, organic shops and street markets (Graph 2).

It is noted that the majority of the products are found mostly in organic shops and small retailers. In particular, *Salvia officinalis* and *Sideritis scardica* were mainly found in such retailers. Nonetheless, supermarkets are also key traders. From that perspective it could be said that these products mainly refer to customers that are particularly interested in small scale trade and have a preference for more ecological friendly brands. However, there is a non significant trade that takes place in a bigger scale and refers to the majority of the customers.



Graph 2. Distribution in different markets

### Origin of traded MAPs

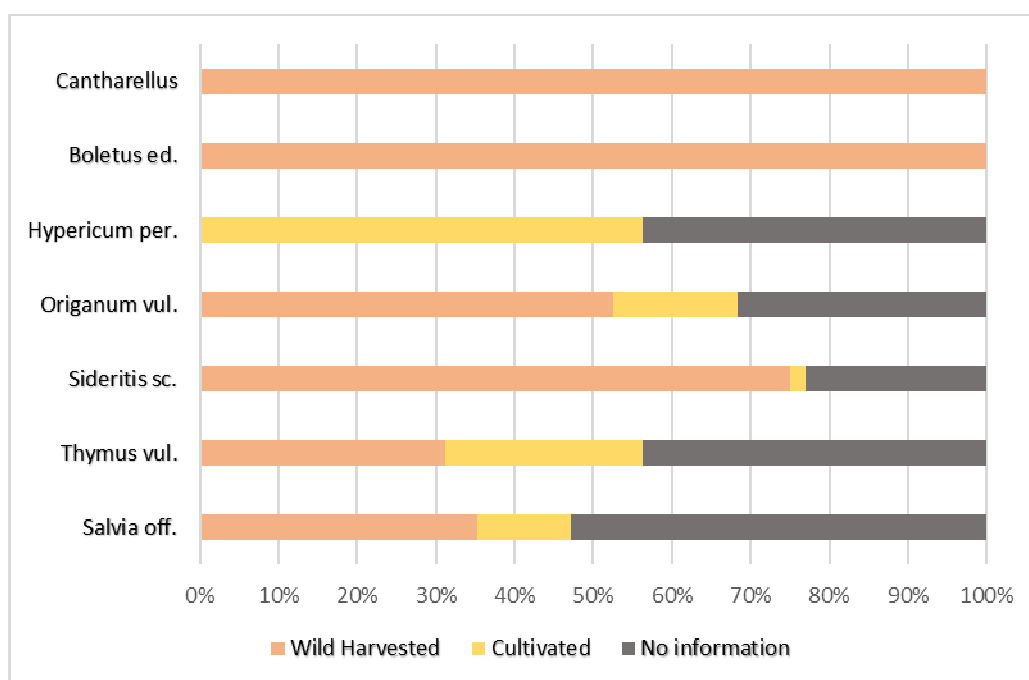
In the following part, the origin of the above species is analysed, that is whether they originate from a wild population or from cultivation. Investigating the existing practices of collection is important in order to understand the extent of uncontrolled and unsustainable harvesting.

The graph below illustrates the origin of the species surveyed. Material is obtained both from cultivation and wild harvest. However, for most of the species wild collection is prevailing over cultivation. It is in the case of *Hypericum perforatum* that cultivation is mainly taking place. Since the mid-1990s, *Hypericum perforatum* has been quickly adapted into large-scale cultivation in order to meet high demands and it is cultivated in at least four provinces in Germany (Lange and Schippmann, 1997). For the rest of the species, cultivation however, is rather small scale and it is mainly taking place in Eastern European countries. In the case of *Salvia officinalis*, *Sideritis scardica* and *Origanum vulgare*, there is a notable high wild harvest percentage.

However, there is a lack of adequate information on the origin of the species, due to a notable complexity of MAPs marketing system. In many cases the market chain is

long, which makes it fairly difficult to obtain detailed information on the source of the material. The interconnectivity of many actors, from primary suppliers and harvesters to exporters and small retailers is complex in itself and trade practices often involve informal trade that renders its understanding even more complex.

In particular, information on the origin of the traded species was hard to obtain. The majority of the products do not include information on their origin and it has been a question that needed to be addressed through further contact with the retailers. Most of them, note that they do not know whether the product they trade is cultivated or wild harvested and a fairly smaller amount acknowledges the fact that information on origin is difficult to have due to difference in the material provided by their wholesale supplier, which could be accounted on changes on availability, market prices and more.



Graph 3. Cultivated/wild

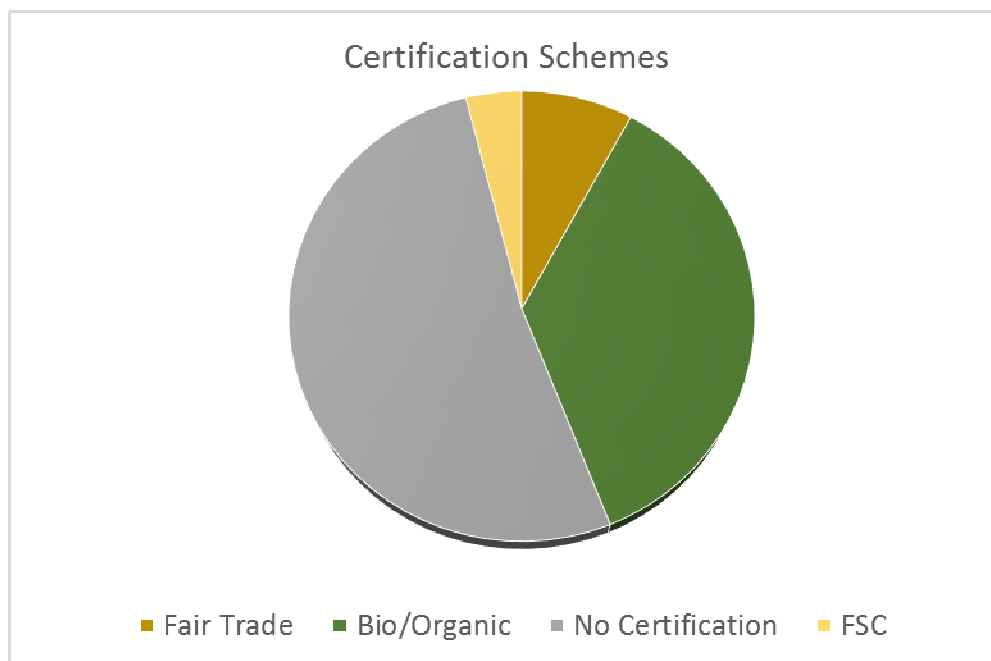
Furthermore, it has been noted that information by wholesale suppliers was difficult to obtain as the majority was unwilling to give out details of their products, pointing to restrictions of the company's policy.

However, on the field of organic products it is interesting to note that part of most firms' philosophy is an attempt to shorten the supply chain. A philosophy presented by many upcoming firms for an ecologically harvested approach, which also asks for more transparency concerning the production. In these cases, cultivation was prevailing as it constitutes a way to provide the market with organically certified products that ensure a fair trade for all parts. Thus, there is a higher tendency to cultivation as a response to market's demand for organic green products, in which case as Lange remarks, the higher cost of production accounts for a more expensive product that costumers are willing to pay (1997). In these cases, branding has been also a strong element in communicating sustainable production practices. Photos of producers themselves,

often accompanied by some quote or short story attempt to create a sense of familiarity between consumer and producer.

### Certification

In this part, certification of the relevant products is examined. Walter, stresses the fact that certification standards could play a major part in assuring compliance with standards of good practices in MAPs collection (2002). In that frame, he refers to four schemes that are relevant to NWFPs. That is, Forest Management Certification, Organic Certification, Social Certification and Product quality Certification. From that point, information on existing certification schemes of the products surveyed was collected. The results are depicted on the following pie chart (Graph 4). According to the chart 52% of the total products have no relevant certification, while a 36% bears a biological or organic one such as DE Bioland or DE Naturland. There is an 8% certified as Fair trade and finally, there is a 4% that includes the percentage of products certified under the FSC scheme. It could be said that there is still a high percentage of products that have no certification. That is both found in products traded by big companies but also in cases that small retailers buy the bulk of the material from wholesaler companies and do the packaging themselves. The part of the trade that is usually referred to as ecological tends to opt for more direct routes and fewer actors in the supply chain or even establish more straightforward connections to the countries that the raw material is produced.



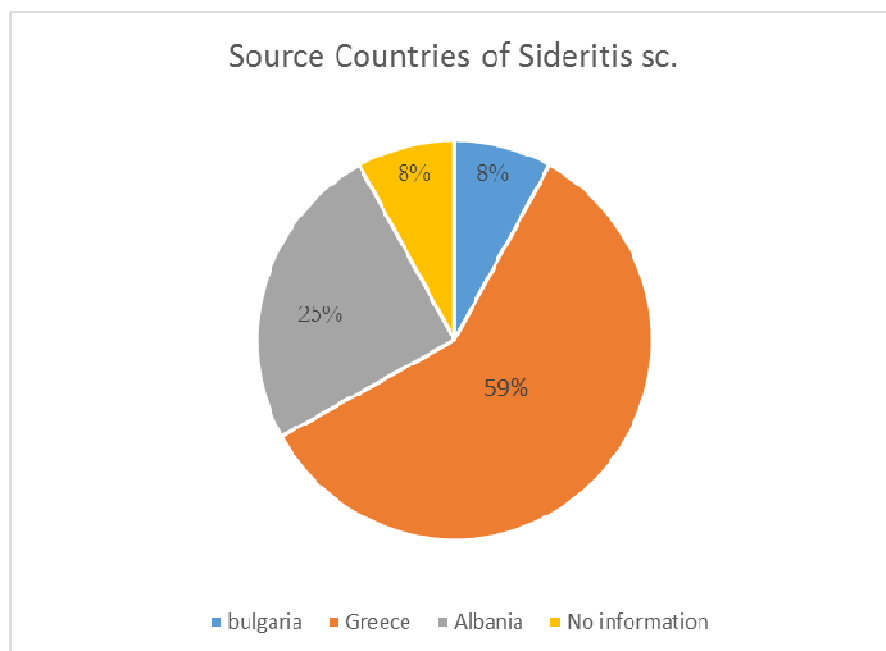
Graph 4. Certification schemes

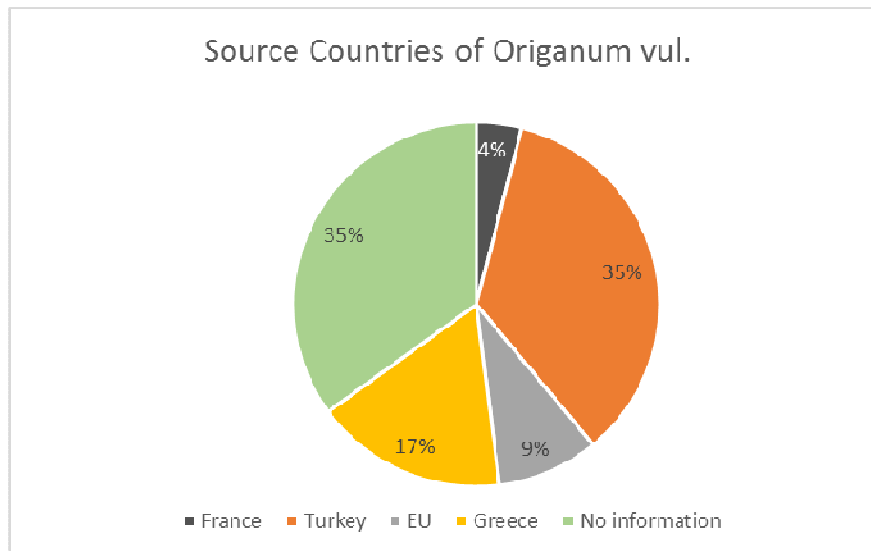
Certification schemes may be an effective tool in the implementation of sustainable management practices. Yet, MAPs' certification is a rather emerging concept and especially in the case of over exploited species its effectiveness needs to be examined individually (Walter, 2002) and be defined along with environmental and socio-economic parameters.

## Geographical origin of MAPs

In this part, information on the supplier countries of medicinal and aromatic plants is presented. As far as national trade is concerned, it is noted that major wholesalers are situated in Hamburg and Bad Grund in the north, Thuringia in central Germany and Abtswind in Bavaria. In the case of organic products a main wholesaler was located in neighboring Austria and in one case in France.

As analyzed above, there has been a small part of national cultivation, especially in the case of *Hypericum perforatum* and *Salvia officinalis*. However, the main bulk of plant material originates from various suppliers, in particular Eastern European countries and countries in the Mediterranean region such as Bulgaria, Albania, Greece, Croatia and Turkey. Serbia is a key supplier of the wild mushrooms species *Boletus edulis* and *Cantharellus*. Information of the origin of the products is very rarely included on the package. If mentioned it is only in the case of some organic products, but the majority of them have no details of the country of origin. From that perspective information was literally impossible to be derived from the package itself. However, after further contact with knowledgeable parties, the percentage of products with unknown origin was still as high as 42%. Thus, analysis of that parameter is fairly problematic for the total of products, but it could be rather illuminating in the case of particular products for which unknown origin rates were relatively smaller. The following graphs depict the source countries for *Sideritis scardica* and *Origanum vulgare*.





## Conclusion

In conclusion the following key points are highlighted.

The market for the MAPs species included in the research is well established and the products are highly traded on the local market. Overall, most species are traded both in rather small local shops that mostly include organic products and in bigger retailers. However, the distribution in biological shops appears to be prevailing, indicative of a possible higher demand of the products in similar retailers.

As far as the relation between cultivation and wild harvest is concerned, it could be said that there is a fairly small cultivation practice for the above species taking place in Germany, which mostly includes the species of *Hypericum perforatum* and to a smaller scale, that of *Salvia officinalis*. There is a high percentage of wild harvested raw material found in the market, including the species of *Sideritis scardica*, *Salvia officinalis* and *Origanum vulgare*. The species of *Boletus edulis* and *Cantharellus* are exclusively wild harvested.

Greece is a source country mainly for *Sideritis scardica*, at a rate of 59%, for *Origanum vulgare* and *Salvia officinalis* at a rate of 17% and 14% respectively. In particular, for *Sideritis scardica* 85% of the total raw material is wild harvested. The latter indicates the importance for management practices to be implemented for its sustainable use. However, as mentioned above such practices need to be inclusive of environmental and socioeconomic parameters along with marketing ones.

Certification schemes are applied to a certain extent. Nevertheless, it is crucial to develop certification standards that are comprehensive enough for MAPs, in regards to both cultivated material and wild harvested species.

Any attempt to implement sustainable harvesting practices needs to take into account the variety of the local, ecological and social parameters that apply in each condition. An individual species' approach is important to be integrated in any conservation attempt.



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