
Posterbeitrag Themenkreis E: Wildsammlung, Inkulturnahme, Züchtung

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Commercial wild collection of medicinal plants – the situation in Poland



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Zusammenfassung

In Europa ist Polen der zweit größte Exporteur von Arzneipflanzen. 25% des Pflanzenmaterials wird durch Wildsammlungen am natürlichen Standort bezogen. Dabei handelt es sich um fast 140 wildgesammelte Arten - zweimal mehr Arten als aus dem Anbau stammen. Generell ist das Potential zur nachhaltigen Sammlung von Pflanzenmaterial an ihren natürlichen Standorten noch weitaus größer. Viele der Arten sind sehr begehrt auf dem europäischen Arzneipflanzenmarkt und nur schwer zu kultivieren, wie die typischen Marschlandarten *Menyanthes trifoliata* und *Acorus calamus*. Die meisten Wildsammlungen finden im Nord-Osten Polens statt, in einer Region in der sich extensiv bewirtschaftete Grünländer konzentrieren. In einigen Fällen ist die Wildsammlung die Haupteinnahmequelle der lokalen Bevölkerung oder ein zusätzliches Einkommen für die ansässigen Bauern. Die vorliegende Studie zeigt, dass Monitoring und Dokumentation der Wildsammlungspraxis auf Waldarten und geschützte Arten reduziert ist. Eine bessere Beurteilung der Orte, Mengen und Wildsammelmethoden ist aus ökonomischer, sozialer und ökologischer Sicht relevant.

Abstract

Poland is the second biggest exporter of medicinal plant material in Europe. What is important 25% of it is collected in nature. Twice more species (nearly 140) are coming from wild collection than from cultivation. Among them are highly desired on the European phytopharmaceutical market but hardly cultivated species like typical for fen meadows *Menyanthes trifoliata* or *Acorus calamus*. Generally, the potential of collection plant material from habitats and ecosystems, kept in well conditions, is even bigger. The great amount of collection is realized in North-Eastern Poland, region with the significant concentration of extensively used grasslands. Sometimes the activity is the main occupation for local people or additional, important source of income for farmers. The study shows that monitoring and documentation of the wild collection practice is limited for example to forest or protected species. Better assessment of place, volumes and way of collection could profit from economic, social as well as environmental side.

Stichworte: Arzneipflanzen, Wildsammlung, Polens Arzneipflanzenmarkt, Handelswege, Naturschutz

Keywords: medicinal plants, wild collection, Polish phytopharmaceutical market, value chain, nature conservation

Introduction

Poland belongs to the Eastern European countries with tradition of the medicinal plants wild collection. It was and currently is common to collect plants in nature for domestic use and for sale. Especially, in North-Eastern part of the country commercial collection has been giving prominent income for local people. Moreover it is region with concertation of National Parks (E.g. Białowieża NP), high nature value farmlands and extensive hay meadows, preserved in the good, natural conditions. These biodiverse, rural and semi-natural areas provide many diverse ecosystem services, among them high quality, various medicinal plants species. According to MAPs classification (2013) Poland is among 20 biggest importers of MAPs (Medicinal and Aromatic Plants) in the world. What is more important plays significant role in providing plant material,

being a second biggest exporter of MAPs in Europe, just after Germany (Lange, 2006, update in 2014). In opposition to Germany, in Poland significant part of material is sourced in nature. Worth to mention is that, there are 450 medicinal plants among Polish flora (ca. 16% of 4750 vascular plants in total). Not even the half of this potential is utilized on phytopharmaceutical market. During the survey of the situation of wild collection the following research questions were stated. Firstly, which plant species are collected in the biggest amount? What is the scale of their collection? What problems are recognized regarding the wild collection? Secondly, what is the situation of monitoring and control of wild collection? Moreover, how is organized the value chain of wild collection? Finally, is it possible to assess how this practice influences natural populations and ecosystems?

Material and methods

To answers the research questions few diverse methods were applied. Firstly the 16 Regional Directorates for Environmental Protection from all of the voivodships were contacted. Additionally meetings, visits and interviews with different stakeholders were organized: eight collectors, tree intermediary persons responsible for acquiring from collectors and storing plant material for companies, four phytopharmaceutical companies. The available literature was surveyed.

Results

In Poland, around 140 species are collected for commercial purposes from nature. Much less are cultivated - 70 medicinal plants (IRiPZ, 2012), but this number is increasing according to intensive research run by independent Institutions like Institute of Natural Fibers and Medicinal Plants in Poznań. Annually, there are collected 20.000-22.000 tons of dried plant material from wild and cultivation in total (Jambor, 2007). In table 1 we can see that 25% of medicinal plant material is coming from nature (Majewska 2014).

Tab. 1: The volumes of medicinal plants collection in Poland (tons of DW)

Part of collection	Annual volume of collection
total volume	20.000-22.000
wild collection	3-5.000
e.g. total volume by one company	375
wild collection of one species	0,1-1.000

One species can be harvested from cultivation even in ten time bigger amount then species collected in nature (table 2). The most desired trees and shrubs species collected from nature are: *Tilia cordata*, *Frangula alnus* or *Sambucus nigra*; from common Eurasian species *Urtica dioica* or *Equisetum arvense* and pasture species like *Euphrasia rostkoviana*. The other species worth to mention relating to amount of collection (ca. 15 tons/year) are: *Epilobium parviflorum*, *Filipendula ulmaria* and *Menyanthes trifolia*.

Tab. 2: Profile of the highest collection of MAPs from wild and cultivation in Poland (2011-2015) [tons of DW]

Wild	Volume	Cultivation	Volume
<i>Tiliae flos</i>	120-200	<i>Menthae piperitae folium</i>	1.400-2.200
<i>Urticae folium</i>	100-200	<i>Matricariae flos</i>	1.500-2.000
<i>Frangulae cortex</i>	100-200	<i>Valerianae radix</i>	800-1.200
<i>Equiseti herba</i>	100-200	<i>Hyperici herba</i>	400-600
<i>Euphrasiae herba</i>	10-20	<i>Arnicae anthodium</i>	10-20

Sometimes phytopharmaceutical entrepreneurs mention that regarding wildly sourced plant material there are problems with good quality and safety of it. It concerns: bad physical conditions (brown parts of material), contamination with pesticides, unstable content of active ingredients and mistakes in species recognition. They occur mainly in case of companies not controlling the

whole chain of supply (localized in the higher level of value chain). Then the most crucial moments stay out of supervision like right and checked place of collection or the drying out process. The confusion regarding proper species collection is related to such species like e.g. *Equisetum arvense* unconsciously replaces with *Equisteum palustre* or *E. limosum*. All of the mentioned difficulties connected with wild collection seem to be present quite often on European market (Wolfgang et al., 2003). The other mentioned problems concern the national law and permission procedure, especially if they face the refusal for collection of demanded species or whole process takes too much time in effect retarding collection. Collectors underline unsatisfying and discouraging payment unequal to borne effort (hard physical work and unfriendly natural, working conditions).

MONITORING AND COTROL OF WILD COLLECTION

The wild collection of herbs is regulated by law, but no institution is obligated to control and document the whole collection: volume, medicinal plants populations in nature, place of collection etc. There are some exceptions. To collect for commercial purpose medicinal plants in the forest there is the need of permission from the managing forester which indicates the place and the volume of collection. The collection of strictly protected plants is forbidden like: *Arnica montana* or *Adonis vernalis*. Species being under "the partly protected" protection category can be collected if the local mentioned RDEP will give the permission. The request from collecting company should include: place and the planned volume of collection. Permission can be given even for the next five years. The number of protected medicinal plants is changing according to new law (last actualization 2014). Currently under protection there are 35 medicinal plants. Among them seven species can be collected but with special permission and these are: *Allium ursinum*, *Helichrysum arenarium*, *Hierochloe odorata*, *H. australis*, *Hippophae rhamnoides*, *Menyanthes trifoliata* and lichen *Cetraria islandica*. Summarizing, as long as species is under protection the information about collection are available. Before 2014 more species were protected, consequently volumes of collection were known for more species (Fig. 1). Surprisingly, the most demanded protected species *Frangula alnus* (10-40 tons/year) is not any more under protection, so data about collection are unavailable. The collection of still protected species *Menyanthes trifoliata* is increasing.

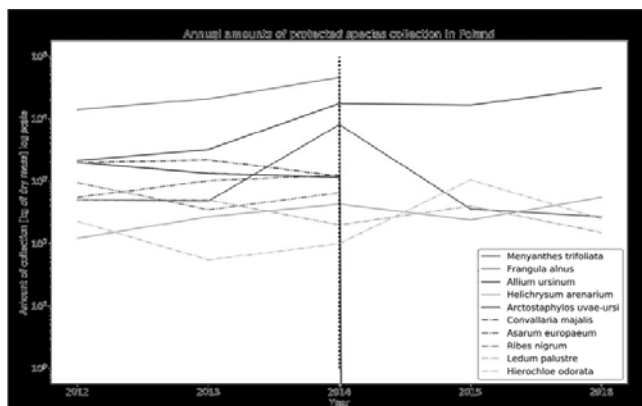


Fig. 1: Commercial wild collection of protected medicinal plants in the last five years [kg of DW in log scale]

Companies specialized in wild collection should respect common and mandatory Good Agricultural and Collection Practices which ensures among others that the collection is sustainable. Additionally, some collecting companies have ecological certificate for all species collected from nature. It means that collection combines best environmental practise, high biodiversity level with protection of natural resources. The place of collection should be well known by company, free from pollution, pesticides and herbicides. This certificate is not so common and the attitude of companies towards it is rather sceptic. What is interesting, one

company has FairWild Certificate. Currently, it is implemented only in 10 countries in the world. This formula guarantees the continued use and long-term existence of wild plant species and populations in their habitats. Moreover is focused on the respect for traditions and cultures, supports the livelihoods of all stakeholders, especially collectors and workers.

Value Chain of Medicinal Plants wild Collection

All collection of medicinal plants is generally organized by the companies specialized in wild collection. These enterprises are concentrated in North-Eastern Poland (Fig. 2). Companies announce the demand on plant material and the prices. The plant material is provided to the company by independent collectors who are not connected with a company by any contract or by employees hired with permanent contract. The plant material is obtained fresh (e.g. *Vaccinium oxycoccus* fruits, *Menyanthes trifoliata* leaves) or mainly dried, depending on market's needs. Collectors are the first step in value chain of wild collection. They are local people from the villages. Collection is the "life occupation" for old people or additional source of income for middle aged women and active farmers. The botanical knowledge collectors gain from families, books or the internet. To learn GACP rules they can participate in meeting organized by company owners in the beginning of the season (April). It is not obligatory for independent collectors to join such meetings. For some of them, especially older collectors, it is impossible to join it regarding logistic difficulties connected with too long distance. Plant material is dried out under controlled conditions in company buildings or traditionally by collectors in specially adapted, their own attics and stables. Ready material is provided directly to the company, sometimes if the collectors are more scattered it is picked up from them or they provide it to the organized by company purchase centres, which are open during the vegetation season (April-November) and localized in the villages far away from company. The companies produce wide range of products from teas, spices, juices and oils to semi-processed dried plant material which is sold further. In the next step, from of this material are produced phytopharmaceuticals, natural cosmetics or dietary supplements. According to data from 2012 (IRiPZ) 70% of dried material coming from cultivation and nature stays in Polish market. The rest is sold abroad to: US, Canada, Germany and Croatia.

Discussion

Poland plays significant role in Europe in providing MAPS. Relevant part (25% - ca. 5 tons/year) of the dried material is coming from wild collection. The activity of collection of nearly 140 species is partly controlled by forest administration or RDEP. Additionally should be controlled by certificates like ECO Certificate, FairWild Certificate if the companies carrying them. The common GACP should be realized by all of them, ensuring sustainability of practices. Generally, companies specialized in wild collection are satisfied with the plant quality. The difficulties are rather recognized by enterprises located in higher level of value chain, characterized by less control. The most of the medicinal plants collected in nature belong to common, moderate climate species. Nevertheless, facing existing scale of collection, sustainability should be ensured. Better tools for assessment of environmental influences should need more attention. The good examples exist in other European countries like Croatia, where for example cooperation with academic institution was organized. Undoubtedly, wild collection carries lot of advantages in comparison to cultivation. Firstly, support biodiversity by no need of monoculture establishment. Do not require use of very often environmental unfriendly crop protection products. Medicinal plants belong to ecosystem services which can be obtain in totally sustainable way, especially from extensive grasslands where the overground parts have to be removed to stop the succession. Finally, wild collectors never will be replaced by machines what give the job opportunity in the villages, in less developed areas and possibility of work in real nature. What is more it supports local traditions. Citing one of the interviewed entrepreneur who raised in the tradition of herbs' wild collection: "There is also surely

the magic and power of such activity like wild collection realized in heart of nature and appreciation of its goods".



Fig. 2: The localization of the main companies sourcing in nature.

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