

THE GARDENS OF MEDICINAL PLANTS AS A MEANS OF PRESERVATION AND RATIONAL VALORIZATION OF BIOACTIVE COMPOUNDS

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Abstract. This paper highlights medicinal and aromatic herb gardens as a means of real preservation and effective utilization of biologically active substance. As forms of organization we have targeted direct impact on certain segments of the population – rural residents and visitors to these areas, manufacturers of herbal products, personnel from monasteries and pilgrims coming here, environment researchers dealing with the recovery of biologically active substances from green natural resources. We focus on three types of gardens: 1. Medicinal and aromatic plants gardens in the natural environment, 2. Medicinal and aromatic plants gardens around the peasant households, guesthouses and small agroproducers of herbal products, 3. Medicinal and aromatic plants gardens from Romanian monasteries. All these can form databases for research in this area – an objective which The Romanian Society of Ethnopharmacology intends to capitalize by editing The Romanian Traditional Pharmacopeia.

Key words: gardens, medicinal plants, bioactive compounds.

INTRODUCTION

Given the outstanding concerns inside current Romanian research in the exploitation of natural resources joint with native species conservation and rational use of natural biologically active substances, Romanian Society of Ethnopharmacology together with researchers from specialized centers are pursuing the most effective methods of preservation and utilization of medicinal and aromatic plants in the Romanian area.

The study conducted on monographs of medicinal and aromatic plants (in various forms for use) present in the Romanian Farmacopoea (1), (FR I 1862, FR II 1874, FR III 1893, FR IV 1926, FR V 1943, FR VI 1948, FR VII 1956, FR VIII 1965, FR IX 1976, FR X 1993), found that the interest in medicinal and aromatic plants was a major one in the first edition of the Farmacopoea remarking a proportion of 60% monographs of medicinal and aromatic plants while in the FR V and VI editions there is a regression of synthetic chemicals in favor of ACARE. After that we are

witnessing again a growing interest for new natural compounds. Currently, production units for herbal supplements have increased the interest in exploiting these invaluable resources.

The current situation of medicinal and aromatic species used in pharmaceuticals, cosmetics, foods or supplements can be summarized as follows:

- ◆ species already included in one of the Romanian Farmacopoea editions;
- ◆ species of wild flora or culture currently used but not included in any of the ten editions of the Romanian Farmacopoea (eg. *Hippophae rhamnoides*, *Artemisia abrotanum*, *Geranium macrorrhizum*, *Chrysanthemum balsamita*, *Alchemilla vulgaris* etc.);
- ◆ species that are found in significant quantities in the wild flora that have been traditionally used and are used by manufacturers of nutritional supplements based on their research in composition and toxicity (eg. *Hippophae rhamnoides*, *Ruscus aculeatus*, *Hedera helix*, *Clematis vitalba*, *Aristolochia clematidis*, *Filipendula ulmaria*, *Alchemilla vulgaris* etc.);
- ◆ introduced species in culture at the request of producers or grown in their farms (eg. *Angelica archangelica*, *Chrysanthemum balsamita*, *Ocimum basilicum*, *Trigonella foenum-graecum*, *Geum urbanum*, *Valeriana officinalis*, *Vinca minor*; etc.);
- ◆ species of foreign origin which were successfully acclimatized and grown in Romania and used in the production of phyto (eg. *Leuzea carthamoides*, *Echinacea angustifolia*, *Arnica chamissonis* etc.);
- ◆ varieties created by Agronomic Research (selection and improvement) with increased biochemical content of active substances and resistant to pests and diseases (eg. *Papaver somniferum*, *Vinca minor*, *Lavandula officinalis* etc.);
- ◆ medicinal species used since empirical medicine – remedies of herbalists or remedies obtained in monasteries (*Vitis vinifera*, *Oleo europea*, *Chelidonium majus*, *Rumex acetosella*, *Viola tricolor* etc.).

Given these data and the availability of Romanians for the cultivation and exploitation of medicinal species, in this paper we try to promote the gardens of medicinal and aromatic plants as a means of conservation and optimum use of natural resources and at the same time as a means to increase the quality of life in rural areas.

MATERIALS AND METHODS

In this paper we present one such experiment conducted in the tourist village Şirnea – a village situated at the foot of Piatra Craiului, in the mountain region of the Land of Bran. The place possesses a great diversity and abundance of medicinal, aromatic and food plants [2].

The medicinal species most known, appreciated and empirically used in the region

are: *Plantago lanceolata*, *Taraxacum officinalis*, *Origanum vulgare*, *Thymus serpyllum*, *Rumex acetosa*, *Gentiana asclepiadea*, *Symphytum officinalis*, *Hypericum perforatum*, *Alchemilla vulgaris*, *Gentiana lutea*, *Centaurium umbelatum*, *Achillea millefolium*, *Arnica montana*, *Verbascum phlomoides*.

Among the species cultivated in the gardens of villagers in Şirnea - as ornamental, aromatic or therapeutic we can specify: *Ocimum basilicum*, *Artemisia abrotanum*, *Mentha piperita*, *Thymus serpyllum*, *Chrysanthemum balsamita*, *Geranium machrorrizum*, *Calendula officinalis*. We used three working methods for the proposed objective of this paper:

- ◆ the method of protecting and increasing natural basins in collaboration with landowners. Among the species represented in the region include: *Arnica montana*, *Hypericum perforatum*, *Alchemilla vulgaris*, *Symphytum officinalis*, *Galium mollugo*, *Thymus pulegioides*, *Verbascum phlomoides*.
- ◆ the method of introducing the culture of some species already known by tradition. In the peasant gardens and landscaped gardens belonging to guesthouses we targeted the introduction of the following species: *Ocimum basilicum*, *Artemisia abrotanum*, *Mentha piperita*, *Thymus serpyllum*, *Chrysanthemum balsamita*, *Geranium machrorrizum*, *Calendula officinalis*, *Angelica arhangelica*.
- ◆ the method of cooperating with monasteries in the area for the enhancement of the existing ornamental and aromatic gardens with some of medicinal species with therapeutic properties including: *Hysopus officinalis*, *Geranium machrorrizum*, *Artemisia abrotanum*, *Chrysanthemum balsamita*, *Achillea millefolium*, *Ocimum basilicum*, *Calendula officinalis*, *Lavandula officinalis*.

RESULTS AND DISCUSSIONS

We initiated the implementation of this project in Şirnea – the first tourist village in Romania – located in the mountainous part of the Bran region. We initiated three directions in the organization of aromatic herb gardens in Romania, namely:

➤ Medicinal and aromatic gardens in natural conditions

Thus, we enriched natural basins of spontaneous flora using the method of spontaneisation [3]. Thus ensuring both existing plant conservation and optimal conditions for growth and multiplication in their natural habitat. In this experiment the plants that responded best to the actions taken were: *Arnica montana*, *Hypericum perforatum*, *Alchemilla vulgaris*, *Symphytum officinalis*, *Galium mollugo*, *Thymus pulegioides*, *Thymus commosus*, *Verbascum phlomoides*, *Achillea millefolium*, *Viola declinata*, *Heleborus purpurascens*.

By alerting and informing citizens, they become aware of the land they own and begin to love plants that they grow, enjoy the yard and their hills and are ready to welcome their guests and share these God's gifts.

➤ **Herb and spice gardens around village households and farms for rural tourism**

These gardens have a special value by allowing exploitation of medicinal and aromatic species in several respects:

- Aromatherapy in the space near the house or guesthouse.
- Preparation of tea plants in the garden.
- Cosmetic and plant treatment with plants from the garden.
- Direct meeting and experience of visitors with medicinal plants in the area, their knowledge and foster respect for the natural riches.
- They can be run as preparatory organization for larger areas cultivated by producers of food supplements and phototherapeutic products.

Among the plants best adapted to this kind of gardens include: *Calendula officinalis*, *Angelica archangelica*, *Artemisia abrotanum*, *Thymus serpyllum*, *Chrysanthemum balsamita*, *Geranium macrorrhizum*, *Ocimum basilicum*, *Mentha piperita*, *Origanum vulgare*.



Alchemilla vulgaris



Arnica montana



Galium mollugo



Thymus pulegioides

➤ **Medicinal and aromatic plants gardens in Romanian monasteries**

Monasteries are places where traditional remedies still find a privileged place, they even become inspiration for producers of herbal products at industrial level. Monasteries have always been God's gardens – where ornamental aromatic and medicinal plants have a very strong vitality.

Therefore we believe that from the development of such gardens can benefit both monks and pilgrims coming to monasteries. Spiritual therapy that pilgrims expect in these areas may be accompanied by phytotherapy and aromatherapy.

In addition the relationship man – natural herb can acquire new approaches.

This paradise of roses and other ornamental plants could be joined in the monastery gardens by medicinal and aromatic plants, out of which we recommend: *Hysopus officinalis*, *Geranium machrorrizum*, *Artemisia abrotanum*, *Chrysanthemum balsamita*, *Achilea millefolium*, *Ocimum basilicum*, *Calendula officinalis*, *Lavandula officinalis*.



Geranium machrorrizum



Calendula officinalis



Mentha piperita



Hysopus officinalis

CONCLUSIONS

The three models of aromatic herb gardens that we offer come to bring added value to rural activities. They may be true data banks on indigenous medicinal species, some of them even endemic, that can be known and used by households in rural areas but can also lead to new ideas for generating productive activities in rural areas focusing on these resources.

Knowing the value of medicinal and aromatic plants in these gardens in natural space, neighborhood houses and guest houses, in and around the production units, we want to increase the sense of conservation and protection of nature and the interest for more efficient exploitation of these resources.

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