

## COCOȘ VALLEY FLORA FROM SATU MARE COUNTY

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**Abstract.** *This article aims to present the flora of Cocoș Valley from Poiana Codrului locality, Satu Mare County. Detailed studies on the flora of the Cocoș Valley area has not been written, but was made only sporadic research on the county territories. Researchers (from Cluj) who made studies mention I. Prodan, O. Ratiu, I. Resmeriță, I. Gergely, which dealt with areas other than that taken in the study. Cocoș Valley, expands on an area of 25.2 hectares and is composed from forests and is located near to Poiana Codrului and Bârsău de Sus. The landscape of this area is quite settled, with only small portions of landslide that appears as a phenomenon with a negative impact on vegetation. In the studied area are favorable shade species, especially beech. In this paper, I made a inventory list and characterization study of the flora planning to highlight some species that deserves to be known, to show the richness of plant species and their number, their care and the*

*importance which have plants for the future of mankind. Analyzing the humidity, we find a predominance of mesophilic plants, moderate water - loving in amounts of percentage of 48.2% and analyzing the temperature index, we found a predominance of mesothermal plants in percentage of 62.5%. The chemical reaction of the soil index tell us that we have a predominance of weak acid neutrophil plants in percentage of 29.8%, followed by eurionice plants in percentage of 24.4%, the acid plants at the rate 21.4%, the acidophilous plants are in small percentage. This study shows that the medicinal plants in a percentage of 28.3% are the most numerous plants in this area, this were used in ancient times to the prevention and treatment of disease. The paper addresses economic aspects of exploitation of wild flora, giving indications for use of this wealth as well by the locals.*

**Key words:** *valley, flora, protection, education, awareness,*

### INTRODUCTION

To study the flora of the Cocoș Valley, we consulted maps and documents of forest management from Borlești, Satu Mare. Based on typological forest map prepared by the Borlești Forestry and the work "Resorts and forest layers", "Forest soils" by C. Păunescu and "Forest Resorts" by C. Chiriță and collaborators, we have conducted research in the entire basin. We noted the location, the geological substrate, we supplemented with other data and comments from the field: the number and kinds of species, stratification, frequency, utility and maintenance measures (GERGELY, I. RATIU, O., 1980).

Following the data collected, we next processed it by determining the species, types of associations and correlation with the requirements. We collected biological material for the herbarium and noted the popular name, the living environment of the plant and we processed the data on the importance of plants.

The ecological indices of humidity, temperature and soil reaction were processed in "Climatological Atlas" (IMH, Bucharest, 1966) and in the paper "Flora and vegetation of Zarand Mountains" (in Botanical Contributions, 1978).

Some teachers of biology have studied the flora of surrounding areas, this studies help to develop and elaborate their PhD study. Thus, some data about the plants in the area appear in the work produced by C. Karacsonzi, M. Marian, M. Miclăuș, I. Moldovan and collaborators.

## **MATERIALS AND METHODS**

Cocoş Valley belongs to the Borleşti Forest, production unit IV of Poiana Codrului.

Before the land reform from 1921, the forests from this unit of production, including Cocoş Valley was owned by Karolyi Şandor and Digenfeld, Hungarian noble (KARACSONYI, C., 1995).

After the reform in 1921, municipalities, forest-owners, have owned some forests and the remaining forests, among which Cocoş Valley were turned over to the CAPS.

Cocoş Valley, expands on an area of 525.2 hectares, is composed of forests and is located near to Poiana Codrului and Bârsău de Sus.

It is located at the boundary with the county of Maramures, but with full surface in Satu Mare, the studied area is located in the southeast of Satu Mare.

It appears that the predominant height, i.e. 66%, is between 250-400 m altitude in favor of oak and beech, and mixtures of the two species.

Solar energy reaches the earths not only as heat form but also as light radiation. Light is of primary importance in the lives of most plants. In its absence, they are not green and cannot perform photosynthesis. The need for light is not the same for all plants in nature occurred during the historical development of the species.

The plants which love light - heliophilous - can not grow and to make fruits if not receive direct sunlight, for example: pine, birch, oak, ash, etc. Plants, which grow in shade - sciafile -, suffer from excessive brightness, exposed to intense sunlight; early in life often remain undeveloped, for example fir, spruce, beech, hornbeam, mosses, ferns, etc...

The arrangement of vegetation on different layers, in the forest is made in relation to light requirements of plants. Spring plants like snowdrops, the violets with two leaves, three bad, bloom in early spring, favored by the light which penetrates the forest floor when is not leafy. All variations in terrain, such as exhibition, tilt and others exert a strong influence on vegetation composition and spread.

The landscape is quite settled, with only small portions of landslide that appears as a phenomenon with a negative impact on vegetation. In the studied area are favorable shade species, especially beech.

Cocoş Valley river inland network is represented by several valleys and streams that come together to form Bărbătoc Valley, which flows into the Vinului Valley, which is directly tributary of the river Somes.

In our temperate climate, plants have adapted to the cycle of growth in two periods of life, an active summer when go green, assimilate, blossom and make fruits, and another dormant in winter, when critical activities are carried out slowly. Regulatory effect on climate, exercised by vegetation is more obvious when are more layers and more dense. It is known the refreshment influence of forest during the scorching heat of summer, and cool inside them during the harsh winter winds.

## **RESULTS AND DISCUSSIONS**

Analyzing the *humidity*, we find a predominance of mesophilic plants, moderate water - loving in amounts of percentage of 48.2%, followed by xeromezophilic plants at a rate of 20.7%, mezohydrophilic plants, plants that prefer moderate amounts of water in percentage of 17.1% and hydrophilic plants, as a percentage of 10.4%. We found that the xerophyte plants are in smaller percentage, i.e. 2.4% and euribionte plants is the lowest percentage of 1.2%.

Analyzing the *temperature* index, we found a predominance of mesothermal plants in percentage of 62.5%, followed by amfitolerant species in percentage of 11.5%, moderately thermophilic plants as a percentage of 10.3%, the thermophilic plants in rate of 3% and the lowest percentage is 1.2% for hechistoterme plants.

Analyzing the *chemical reaction of the soil* index, we found a predominance of weak acid neutrophil plants in percentage of 29.8%, followed by eurionice plants in percentage of 24.4%, the acid plants at the rate 21.4%, neutrophil plants in percentage of 18.4%, the acidophilous plants are in small percentage 4.8% and the percentage is very small for the acidophilous plants 1.2%.

Also, note that the hemicryptophytes are predominant in percentage of 40.6%, followed in lower percent by geophyte with 11.4%, megaphanerophyte with 9.1%, annual terophitic with 7.4%, meso-phanerophyte with 6.9%, chamaephyte with 4.5%, helohidatophytes with 4% and in small percentages are nanophanerophyte 3.4%, terophite, and phanerophyte with 2.9%.

Tracking and analyzing the *geoelements* we find that the Eurasian plants are the largest percent 38%, the European plants in 24%, the cosmopolitan plants in a percentage of 15.2%, circumpolar plants at the rate of 6.4%, the sub-mediterranean plants in rate of 5.3%, Central European plants 4%. The percentages are small for Eurasian continental plants by 2.3%, adventitious 1.8% mediteraneano-pontic 1.2%, Mediterranean and Atlanto-Mediterranean plants with 0.6%.

We found that of all the plants we studied, the most numerous are the medicinal plants as a percentage of 28.3%, plants used in ancient times to the prevention and treatment of disease. Medicinal plant capacity to influence the internal functions of the body is based on substances that they contain: essential oil, bitter vegetable substances, minerals, vitamins, alkaloids, tanning. In 21% of other plants are not economically significant.

Bee plants from the studied area are in percent of 11.7%, have a particular importance to beekeeping, they produce nectar and are visited by bees that transform this nectar into honey.

Toxic plants represent 10%. These plants, by their content in various substances, produce to humans and animals temporary illness or fatal illnesses. The percentage of 8.9% is represented by wood and fodder plants, woody species are the most important forming vast forests, exploited in a rational way according to forest planning. These woods have been since ancient time's important sources for wood and for the local population.

From 1801 until 1960, wood from Cocoş Valley and Bărbătoc Valley were the main source of fuel for glass plant in Poiana Codrului. The species used to melt raw materials and to obtain glass were hardwood species with high calorific value, e.g. beech, oak, hornbeam. From willow were made baskets for glasses and balloons. There are people in the area who took carving tradition from their ancestors, bringing it further. They use soft wood, such as poplar, willow, linden, hazel, to make various household objects such as spoons, handles for various tools, covet, etc., and from hardwood oak and sessile, they manufactured barrels of different sizes (MOHAN, GH., ARDELEAN, A., 1993).

The vegetation of Cocoş Valley basin is similar with the beech, oak and hornbeam. As zonal vegetation, the beech forests are predominant. Currently a part of the territory is being occupied by forest regeneration, and another reached the age of exploitability. Predominant is the association of oak with beech (Goruno - Făgete) with specific herbal plants. On acid soils vegetate pure beech forests (Luzulo - Făgete), of which some are in recovery, while others are best for exploitation. On the edge of streams, vegetation consists of alder clumps (*Alnetum glutinosae*). The meadows are well represented, and we identified patches of natural grassland of *Agroshetum tenuis*, with good productivity, installed after the cuts of wood.

The azonal herbaceous vegetation is found as small groups generated by sources in the swamps. Often used as pasture here we find *Juncetum efussi* and *Juncetum glaucae*.

The territory is occupied also with spruce plantations (*Picea abies*), pine (*Pinus nigra*), fir (*Abies alba*), larch (*Larix decidua*).

Looking the vertical structure of phytocoenosis of forest, there are four layers: tree layer, shrub layer, herbal layer and moss layer.

In the area are found mushrooms, near some old stumps, and others in forest clearings: marigold (*Amanita Caesarea*), yellow sponge (*Cantharellus cibaris*), hrib (*Baletus edulis*), pepper sponges (*Lactorius piperatus*), morel (*Marchella esculenta*).

### CONCLUSIONS

This paper is a summary of the main physical - geographical factors and complete knowledge of spontaneous plants surrounding Poiana Codrului and Bârsău de Sus localities. The studied area is situated at the bottom part of the Codrului Mountains, at a distance of 3 km from the highest peak, peak Tarnița. The hills are covered with forests of beech, hornbeam and oak, sporadically sky, maple, spruce, pine, etc.... Spontaneous flora is widespread in the forests, on the rivers, valleys, through meadows and roadsides.

By studying the wild flora we have sought to highlight the important elements such as: knowledge of the spreading area, living environment, development, flowering, fructification and the importance of economically aspect.

The paper addresses economic aspects of exploitation of wild flora, giving indications for use of this wealth as well by the locals. Medicinal plants found in a high percentage, is a source of health, which nature provides it to us abundantly. Toxic plants can be harvested as medicinal plants, so it is important to know them. Woody species are another important natural wealth of the Cocoș Valley, which provided positive effect on the environment.

Because the protection and conservation of nature has become an important issue, both worldwide and in our country, we should take all the measures for a more rational use of natural resources to stop the destruction of certain territories.

The woody plants have a significant capacity in decreasing air pollutants, acting as true biological filters, de-pollute the atmosphere by the breakdown of gaseous and liquid compounds, e.g. *Fagus sylvatica* - beech has a strong influence in reducing sulfur dioxide pollution, absorb carbon dioxide in the photosynthesis process, prevent soil degradation, e.g. *Alnus incana* - white hazel, has a role in soil improvement and fixation of degraded land.

It is imperative that people has to protect and preserve the forest, this "green gold", which could take refuge from time to time. These forests must be considered true sanctuaries to live, where people walk with respect and understanding of plants and creatures that make up and evolution of millennial natural ecosystems. Each person must be aware of these wonderful protector pockets of nature.

The taste for the beautiful and picturesque in nature dwells in the hearts of everyone, regardless of age or occupation, regardless of faith or ethnicity, and this taste should be stimulated by environmental consciousness (SABO, 2011).

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