



Development of a functional model for sustainable capitalization of genetic and phytochemical diversity of *Arnica montana* L. wild populations in the Northern area of the Romanian Eastern Carpathians (ARMOREC)

PROJECT Summary

The ARMOREC project has as **general objective** the optimizing the capitalization of the *Arnica montana* L. natural populations from the north of the Eastern Carpathians by developing a new innovative model for the sustainable production of raw material (collecting, cultivation, conditioning) and of some eco-efficient processing methods of the vegetal material.

In this respect, it is necessary to develop inter- and transdisciplinary studies in the fields of biology, ecology, geomorphology, biotechnology and phytochemistry, grouped in 3 major components: the environment component with connex aspects, the phytochemical and economical component – the capitalization by the industrial partner (SME).

The members of the consortium, by their expertise and experience in the project domain has the competences necessary to the development of the researches with a high degree of complexity and interdisciplinarity.

To attain the general objective of the project, we will process a series of activities grouped in 5 work packages corresponding the **specific objectives**:

1. Evaluating the bioproductive potential in the natural populations of *A. montana* from the north of the Eastern Carpathians, on the basis of the quantitative and qualitative determinations on the biomass yield, as well as the content of biologically active principles.

2. Evaluating the preservation status of the *A. montana* species in the target area, correlated to the main pressure factors.

3. Elaboration of a model of developing a complementary source of raw material by conventional and biotechnological methods.

4. The development of some eco-efficient methods of extraction and phytochemical analysis for the main biologically active compounds – sesquiterpen-lactones, flavonoids and phenolic acids, essential oil.

5. The development of an experimental model for the sustainable capitalization of *A. montana* (natural populations and experimental cultures) by obtaining and characterizing the specific phytocomplexes with multiple uses.

The originality of the project resides both in selecting the study and analysis methods and in the holistic approach of the problem that aims the whole capitalizing chain of the principles of sustainable growth. It is the first time when an interdisciplinary approach is proposed to model the effect of the abiotic factors on the distribution of *A. montana* on the basis of a spatial analysis model.

Reaching the aims will promote the sustainable capitalization of the species in the north of the Eastern Carpathians, that will have complex, interdisciplinary stages at the basis (with economic and scientific importance) and will generate added value over the whole chain of capitalization and will also assure the biodiversity conservation.

Although for *A. montana* the interest kept itself at a high international level, in Romania, the species is slightly capitalized, both economically and scientifically. Thus, thorough studies are scarce, integrated in the present state of the species in the natural populations, in the preservation and capitalizing and promoting of autochthonous products. The majority of the studies achieved in Romania refer to the Apuseni Mountains, in the Eastern Carpathians, the species being only mentioned in some floristic studies.

By developing this project, we aim the sustainable capitalization of the species at local and regional level, in relation to the peculiarities of the species, and of its status as a rare and vulnerable species and the demands of the market.

Approaching a species that has already for long been studied worldwide, represents a reason to elaborate a capitalization plan of the species, this being in the same time a very good model to capitalize other medicinal, aromatic and food species of the mountain zone. In the time, this model of sustainable capitalization may be adapted and extrapolated to all the Romanian areals of this species.