IDENTIFYING THE MAIN MEDICINAL AND AROMATIC PLANTS IN THE ALMĂJ DEPRESSION (CARAŞ-SEVERIN COUNTY, ROMÂNIA)

IDENTIFICAREA PRINCIPALELOR PLANTE MEDICINALE ŞI AROMATICE DIN DEPRESIUNEA ALMĂJULUI

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Abstract: *The Almăj Depression, located in the south-west part of the Romania, is also known as the Almăj Country. Over the depression there are some of the best known nature reserves from the Banat - the Izvorul Bigăr Nature Reserve in the Miniş Gorges, the Rudăria Gorges - and also some important spreading areas for thermophilous species. The depression is one of the most typical intra-mountain depressions in Romania offering particularly favourable climate conditions for a large number of plants of which numerous medicinal and aromatic plants.*

Rezumat: *Depresiunea Almăjului situată în partea de sud-vest a României este cunoscută şi sub numele de Ţara Almăjului. Pe teritoriul depresiunii sunt incluse şi câteva dintre cele mai cunoscute rezervaţii naturale din Banat - Rezervaţia Izvorul Bigăr în Cheile Minişului, Cheile Rudăriei - precum şi arealele de răspândire pentru numeroase specii termofile. Depresiunea se prezintă ca una dintre cele mai tipice depresiuni intramontane din ţara noastră ce oferă condiţii climatice deosebit de favorabile pentru un mare număr de plante dintre care numeroase specii medicinale şi aromatice.*

Key words**:** *medicinal and aromatic plants, active principles*
Cuvinte cheie**:** *plante medicinale şi aromatice, principii active*

INTRODUCTION

The geographical position of our country, particular favourable and with a very varied relief and a favourable climate regime allows the development of over 3,600 species. Among them, 870 species are used in traditional medicine and 200 are studied from a chemical, pharmacy, and dynamic points of view and about 100 species are used currently in self-medication. In today's Romania they cultivate 50 species of medicinal plants and herbs to be used in medicine and as herbs (Grigorescu, 1997).

The Almăj Depression is located between the chain of the Semenic Mountains and the Almăj Mountains, covering a total of 28,000 ha. The Almăj Depression has an ellipsoid shape prolonged over the north-east and south-west direction, and it is crossed by the Nera River. It has altitudes of 400-450 m south and 300-350 m west. Over the depression there are 7 levels of terraces, more developed on the left bank of the Nera River. Superficial lithographic deposits have a marl, clay, and sand structure, while crystals and limes only have a patchy aspect. Annual average temperature at Bozovici is 11.10^0C, going below 10^0C at higher altitudes. Winter average temperature is 1.00^0C, spring average temperature is 11.30^0C, summer average temperature is 20.20^0C, and autumn average temperature is 11.80^0C. In the depression, winters are mild, summers are not too hot, and spring and autumn have close average temperatures. Annual rainfalls are between 500 and 800 mm, being strongly influenced by altitude.

Predominant soils are forest brown soils and podzolised forest brown soils, and erosion degree is in general poor or moderate.

MATERIAL AND METHOD

Floristic researches were carried on by field observation in different period of the year, between 2003-2006. Species identification was done using the *Flora României*; the actual names of the species are noticed after Ciocârlan V. (2000) and *Flora Europaea* (electronic edition). Our field data were completed using information from specific literature.

RESULTS AND DISCUSSION

The floristic richness of the Banat area also reflects in the large number of medicinal and aromatic plants identified, which offers the possibility of multiple valorising. As a result of our research, we have identified a number of 246 species of medicinal and aromatic plants belonging to a number of 63 botanical families: are best represented the families *Lamiaceae* (27 species), *Asteraceae* (26 species), and *Rosaceae* (18 species).

Încrengătura Pteridophyta
Familia Equisetaceae
Equisetum palustre L.
Equisetum arvense L.
Equisetum maximum Lam.
Equisetum hiemale L.
Familia Polypodiaceae
Cystopteris fragilis (L.) Bernh
Dryopteris filix-mas (L.) Schott
Ceterach officinarum D.C.
Polypodium vulgare L.
Pteridium aquilinum L.
Familia Cupressaceae
Juniperus communis L.
Încrengătura Angyospematophyta
Familia Betulaceae
Corylus avellana L.
Betula verrucosa Ehrh.
Alnus glutinosa (L.) Gaertner
Familia Fagaceae
Fagus sylvatica L.
Querqus petraea Matt.
Querqus robur L.
Familia Juglandaceae
Juglans regia L.
Familia Salicaceae
Populus nigra L.
Salix alba L.
Familia Cannabiaceae
Humulus lupulus L.
Familia Urticaceae
Urtica dioica L.
Parietaria officinalis L.
Familia Loranthaceae
Viscum album L.
Familia Polygonaceae
Rumex acetosella L.
Rumex acetosa L.
Rumex crispus L.
Polygonum aviculare L.
Polygonum hydropiper L.
Familia Chenopodiaceae
Chenopodium botrys L.
Familia Caryophyllaceae
Stellaria media (L) Vill.
Herniaria glabra L.
Gypsophyla muralis L.
Saponaria officinalis L.
Lychnis flos-cuculi L.
Familia Euphorbiaceae
Euphorbia cyparissias L.
Mercurialis perennis L.
Familia Ranunculaceae
Caltha laeta S. N. et Ky.
Helleborus odorus W. et K.
Helleborus purpurascens W. et K.
Anemone ranunculoides L.
Anemone nemorosa L.
Hepatica triloba Miller
Clematis vitalba L.
Clematis recta L.
Ranunculus ficaria L.
Ranunculus acris L.
Familia Aristolochiaceae
Asarum europeum L.
Aristolochia clematitis L.
Familia Berberidaceae
Berberis vulgaris L.
Familia Papaveraceae
Chelidonium majus L.
Papaver rhoeas L.

Fumaria officinalis L.
Familia Brassicaceae (Cruciferae)
Alliaria officinalis Andrz.
Cardamine bulbifera L.
Cardamine pratensis L.
Alyssum montanum L.
Lunaria annua L.
Capsella bursa-pastoris (L.) Medikus
Brassica nigra L.
Familia Resedaceae
Reseda lutea L.
Familia Cistaceae
Helianthemum nummularium L.
Familia Violaceae
Viola odorata L.
Viola tricolor L.
Familia Hypericaceae
Hypericum perforatum L.
Familia Crassulaceae
Sedum maximum (L.) Hoffm.
Sedum acre L.
Familia Rosaceae
Crataegus monogyna Jacq.
Crataegus oxyacantha L.
Fragaria vesca L.
Rubus caesius L.
Rubus idaeus L.
Potentilla recta L.
Potentilla reptans L.
Potentilla anserina L.
Geum urbanum L.
Filipendula vulgaris Moench.
Filipendula ulmaria (L.) Maxim.
Agrimonia eupatoria L.
Sanguisorba minor Scop.
Sanguisorba officinalis L.
Rosa canina L.
Rosa gallica L.
Prunus spinosa L.
Cerasus avium (L.) Moench.
Familia Fabaceae (Leguminosae)
Genista tinctoria L.
Chamaespartium sagittale (L.) P.E.Gibbs
Cytisus scoparius (L.) Link
Cytisus nigricans L.
Melilothus officinalis L.
Melilothus albus Medik
Trifolium repens L.
Trifolium pratense L.
Ononis arvensis L.
Coronilla varia L.
Robinia pseudacacia L.
Familia Lythraceae
Lythrum salicaria L.
Familia Onagraceae
Epilobium palustre L.
Oenothera biennis L.
Familia Malvaceae
Althaea officinalis L.
Lavathera thuringica L.
Malva silvestris L.
Malva neglecta Wallr.
Familia Tiliaceae
Tilia tomentosa Munch.
Tilia cordata Mill.
Tilia platyphyllos Scop.
Familia Oxalidaceae
Oxalis acetosella L. H.
Familia Geraniaceae
Geranium macrorrhizum L.
Geranium robertianum L.
Geranium pusillum L.
Familia Balsaminaceae
Impatiens noli-tangere L.
Familia Polygalaceae
Polygala vulgaris L.
Familia Anacardiaceae
Cotinus coggygria Scop.
Familia Rhamnaceae
Rhamnus catharctica L.
Rhamnus tinctoria W. et K.
Frangula alnus Mill.
Familia Cornaceae
Cornus mas L.
Familia Araliaceae
Hedera helix L.
Familia Apiaceae (Umbeliferae)
Sanicula europaea L.
Eryngium campestre L.
Eryngium planum L.
Conium maculatum L.
Carum carvi L.
Pimpinella saxifraga L.
Peucedanum oreoselinum (L.) Moench.
Familia Primulaceae
Lysimachia nummularia L.
Lysimachia vulgaris L.
Anagallis arvensis L.

Primula veris L.
Familia Ericaceae
Vaccinium myrtillus L.
Familia Convolvulaceae
Convolvulus arvensis L.
Calystegia sepium L.
Familia Boraginaceae
Echium vulgare L.
Myosotis palustris (L.) Nath.
Lithospermum arvense L.
Lithospermum purpurocaeruleum L.
Pulmonaria officinalis L.
Symphytum officinale L.
Anchusa officinalis L.
Familia Solanaceae
Atropa bella-dona L.
Physalis alkekengi L.
Solanum dulcamara L.
Solanum nigrum L.
Scopolia carniolica Jacq.
Datura stramonium L.
Hyosciamus niger L.
Familia Srophulariaceae
Verbascum phlomoides L.
Linaria vulgaris L.
Scrophularia nodosa L.
Veronica chamaedrys L.
Veronica officinalis L.
Digitalis grandiflora Mill.
Gratiola officinalis L.
Melampyrum cristatum L.
Melampyrum bihariense Kern.
Familia Verbenaceae
Verbena officinalis L.
Familia Lamiaceae (Labiatae)
Ajuga reptans L.
Ajuga genevensis L.
Teucrium montanum L.
Teucrium chamaedrys L.
Glechoma hederacea L.
Prunella vulgaris L.
Prunella grandiflora (L.) Scholler
Melittis melissophyllum L.
Lamium album L.
Lamium purpureum L.
Galeopsis speciosa Mill.
Ballota nigra L.
Stachys sylvatica L.
Betonica officinalis L.
Leonorus cardiaca L.
Salvia glutinosa L.
Calamintha officinalis Moench.
Calamintha acinos (L.) Clairv.
Origanum vulgare L.
Thymus pulegioides L.
Thymus glabrescens Willd.
Thymus marchallianus Willd.
Lycopus europaeus L.
Mentha pulegium L.
Mentha aquatica L.
Mentha longifolia (L.) Nath.
Nepeta cataria L.
Familia Plantaginaceae
Plantago major L.
Plantago media L.
Plantago lanceolata L.
Familia Gentianaceae
Gentiana asclepiadea L.
Centaurium umbelatum Gilib.
Familia Apocynaceae
Vinca minor L.
Familia Asclepiadaceae
Cynancum vincetoxicum (L.) Pers.
Familia Oleaceae
Fraxinus ornus L.
Fraxinus excelsior L.
Syringa vulgaris L.
Ligustrum vulgare L.
Familia Rubiaceae
Asperula odorata L.
Galium mollugo L.
Galium verum L.
Familia Caprifoliaceae
Sambucus nigra L.
Sambucus ebulus L.
Viburnum opulus L.
Familia Valerianaceae
Vaeriana officinalis L.
Familia Dipsacaceae
Scabiosa ochroleuca L.
Dipsacus laciniatus L.
Dipsacus sylvestris Huds.
Familia Asteraceae (Compositae)
Eupatorium cannabinum L.
Solidago virgaurea L.
Bellis perennis L.
Inula conyza D.C.
Inula helenium L.

Telekia speciosa (Schreb.) Baumg.
Bidens tripartita L.
Anthemis tinctoria L.
Achillea millefolium L.
Matricaria matricarioides (Less.) Porter
Matricaria chamomilla L.
Tanacetum vulgare L.
Chrysanthemum leucanthemum L.
Artemisia vulgaris L.
Artemisia absinthium L.
Tussilago farfara L.
Petasites hybridus (L.) Gaertn.
Carlina acaulis L.
Arctium lappa L.
Carduus nutans L.
Centaurea cyanus L.
Cicorium intybus L.
Hypochoeris maculata L.
Taraxacum officinale Weber
Mycelis muralis (L.) Dum.
Hieracium pilosella L.
Familia Liliaceae
Allium ursinum L.
Lilium martagon L.
Ruscus aculeatus L.
Colchicum autumnale L.
Veratrum album L.
Polygonatum odorathum (Mill.) Druce
Convallaria majalis L.
Familia Amaryllidaceae
Galanthus nivalis L.
Familia Dioscoreaceae
Tamus communis L.
Familia Juncaceae
Juncus inflexus L.
Familia Poaceae (Gramineae)
Cynodon dactylon (L) Pers.
Lolium perenne L.
Elymus repens (L.) Gould
Familia Orchidaceae
Orchis morio L.
Gymnadenia conopea (L.) R. Br.
Neottia nidus-avis (L.) Rich.
Cephalanthera longifolia (Huds.) Fritsch
Familia Araceae
Arum maculatum L.

Among the species with high frequency and abundance that are harvested and marketed in the area, without damaging the species, we should mention the following species: *Equisetum arvense, Humulus lupulus, Urtica dioica, Parietaria officinalis, Rumex acetosella, Polygonum hydropiper, Aristolochia clematitis, Viola tricolor, Hypericum perforatum, Rubus sp., Crataegus sp., Fragaria vesca, Geum urbanum, Filipendula sp., Agrimonia eupatoria, Prunus spinosa, Sarothamus scoparius, Melilothus officinalis, Trifolium repens, Tilia sp., Geranium macrorrhizum, G. robertianum, Cornus mas, Sanicula europaea, Primula officinalis, Pulmonaria officinalis, Atropa bella-donna, Verbascum phlomoides, Digitalis grandiflora, Leonurus cardiaca, Origanum vulgare, Thymus sp., Mentha sp., Plantago sp., Vinca minor, Centaurium umbelatum, Sambucus sp., Valeriana officinalis, Bellis perennis, Achillea millefolium, Matricharia chamomilla, Tanacetum vulgare, Artemisia vulgaris, Tussilago farfara, Carlina acaulis, Arctium lappa, Cichorium intybus, Taraxacum officinale, Hieracium pilosella, Colchicum autumnale.*

To these species we could add in the future other species with high frequency that could be harvested in the studied area: *Dryopteris filix-mas, Althaea officinalis, Corylus avellana, Alnus glutinosa, Chelidonium majus, Polygala vulgaris, Frangula alnus, Eupatorium cannabinum.*

Of the 246 medicinal and flavour plants identified, 45.00% of the total number are used by traditional medicine. A lot of these species are not studied or are very little studied from a bio-chemical point of view, which means that they could have other uses as well.

CONCLUSIONS

The Banat area is characterised by a remarkable floristic richness, which also reflects in the large share of the medicinal plants. Of the total number of 870 medicinal species

identified in the flora of our country, a number of 246 species have been identified in the area under study, which represents a share of 30.00% of the total number of species.

Romanian medicinal plants are known to have a high content of active principles; this explains why they are very much demanded by both domestic and foreign processing companies.

To the species already known to be harvested and marketed in the Almăj Depression, we could also add other species in which we noticed a high frequency. Nevertheless, we need to carry on supplementary research to establish their content in active principles to see if they fir optimal limits.

As a consequence, medicinal plants of the spontaneous flora represent a valuable source of raw matter of vegetal origin. It is nevertheless necessary to valorise this resource on the ground of a solid scientific research in order not to produce serious ecological damage and endanger the existence of the species themselves.

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