MEDICINAL PLANTS FROM THE NERA GARGES USED IN THE TREATMENT OF RESPIRATORY DISEASES

PLANTE MEDICINALE UTILIZATE ÎN BOLILE APARATULUI RESPIRATOR PREZENTE ÎN CHEILE NEREI

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Abstract. *In this paper we present an inventory of the plant species acting on respiratory diseases, existing in the Nera Gorges. The reference area is favourable for numerous annual ad perennial, herbaceous and tree species belonging to different botanical families. The soil and climate conditions in the area under study ensure a high content of active principles in the plants*

Rezumat: *Lucrarea cuprinde o inventariere a speciilor cu acțiune în afecțiunile aparatului respirator existente în Cheile – Nerei. Teritoriul de referință este favorabil pentru numeroase specii anuale şi perene, erbacee şi arboricole aparținând la familii botanice. Condițiile pedoclimatice din teritoriul studiat asigură acumularea unui conținut ridicat de principii active.*

Key words: *medicinal plants, respiratory diseases, the Nera Gorges*
Cuvinte cheie: *plante medicinale, boli ale aparatului respirator, Cheile Nerei*

INTRODUCTION

The River Nera has its source in the Semenic Mountain and flows into the Danube River. The Nera Gorges proper are 19 km long, between the villages of Şopotul Nou and Sasca Română.

The annual temperature regime is characterised by average values of 10-11°C, with annual average amounts of 750-800 mm during the rainfall interlude.

Average values for global thermal resources at temperatures higher than 0°C oscillate between 3,800 and 4,000°C, and the sum of temperatures above 5°C oscillate between 3,600 and 3,800°C.

Soils in the area under study are distributed in a mosaic-like pattern, following the relief forms and the existing bio-climate conditions. Soils belonging to the eutrocambisoils and districambisoils are predominant.

On smaller areas there are rendzines and red soils (*Terra rossa*).

In these conditions of favourability grow over 250 species that can be ranged in the group of medicinal plants.

MATERIAL AND METHOD

During vegetation, starting from March and going on till November, we made monthly measurements concerning the presence and frequency of species used in respiratory conditions.

During this period of time, we inventoried these species so that later on we could make measurements concerning their chemical composition. The most valuable species shall be compared to the similar species from other areas of Romania, in order to focus on those species that are important in their improvement in order to develop new cultivars.

RESULTS AND DISCUSSION

Species identified in the area under study and that are used in the treatment of respiratory diseases are presented below in alphabetical order:

Abies alba Mill. We use the cones rich in volatile oil (pinen, borneol, and alcohol), the bark containing tannin and resin, and the leaves for their volatile oil content (1-α-pinen, 1-limonem, 1-bornyl-acetate, and lauric aldehyde).

Althae officinalis L. We use the roots rich in starch, mucilage, free simple sugars, fatty oil, tannins, flavonoids, fats, proteins, and mineral salts.

Hyosciamus niger L. The leaves are used for their content in tropanic alkaloids, scopolamine, free amino-acids, flavonoids, tannins, vitamin C, etheric oil, bitter glycoside (hyposcipicrine, caffeic acid, chlorogenic acid, and non-chlorogenic acid), mineral substances, seeds rich in alkaloids, and the root containing alkaloids.

Hedera helix L. We use the leaves rich in hederine, heteroside A, rutoside, chlorogenic acid, caffeic acid, scopoline, sugars, β- carotene, estrogenous substances, mineral salts, and the wood rich in falcarinone, gumiresine, and poly-acetylene ketones.

Malva sylveslris L. The leaves are used for their content in mucilage (1.00%), sugars, vitamin C, mineral salts, and the flowers, rich in mucilage's and antocyanine-malvine.

Papaver rhoeas L. We use the capsule rich in alkaloids (morphine, codeine, tebaine, pseudo-morphine, neoptine, papaverine, narcotoline, protopine, cryptopine, coriluberine, and berberine), enzymes, invertases, protease, simple sugars (glucose, fructose, saccharose, and holocellulose – 57.30%), pentosanes (22.00%), and pectins (9.40%), and the seeds containing fatty oil (45.00-55.00%), proteins (20.00-24.00%), free amino-acids, sugars (5.60-7.67%), vitamin B_1 (0.74-1.36%), vitamin B_2 (0.75-1.23%), alkaloids, enzymes, the leaves rich in inorganic substances, alkaloids, free amino-acids, sugars, organic acids, and vitamins, and the root rich in alkaloids (0.08-0.12%).

Petasites officinalis Moench. We use the leaves for their rich content in terpene derivatives, volatile oil, mucilage, glycoside bitter substance, protein substances, amino-adipose acid, resins, tannins, mineral salts, and the roots for their content in volatile oils, glucose, saccharose, inuleine, helioteline, choline, and potassium and magnesium salts.

Pimpinella saxifrage L. We use the root for its content in volatile oils (1.20-6.00%), polynes, caffeic acid, triterpene saponosides, organic acids, and mineral salts.

Pinus sylvestris L. We use the leaves and buds rich in volatile oils (0.30-0.60%) (α-pinen 10.00%, β-pinen (4.00%), limonem (5.00%), tannins, resins, vitamin C, and mineral substances.

Plantago lanceolata L. The leaves are used for their content in aucuboside (2.80-3.20%), pectins (5.00-10.00%), vitamins A, C, and K, starch, mucilage, and potassium, calcium, phosphorus, manganese, magnesium, natrium, iron, zinc, brome, copper, molybdenum, and aluminium mineral salts.

Plantago major L. We use the leaves rich in pectins, galactose, arabiose, soluble sugars, flavones, tannins (4.00-5.76%), saponines, aromatic amino-acids, free amino-acids, alkaloids, enzymes, vitamins A, C, and K, etheric oil (0.20%), resin, fatty oil, and calcium, potassium, natrium, zinc, and copper mineral salts.

Polygala vulgaris L. We use the root for its rich content in glycosides, mucilage, saponosides, volatile oil, and tannins.

Primula elatior L. We use the root rich in triterpenic saponosides (5.00-10.00%), starch, sugars, heterosides, volatile oil, enzymes, flavonoids, and mineral salts, and the leaves for their content in vitamin C (3.00-5.00%) and β-carotene.

Primula verris L. We use the root for its content in triterpenic saponosides (5.00-10.00%), sugars, starch, volatile oil, tannoides, flavonoides, and mineral salts, and the leaves rich in β-carotene and vitamin C (3.00-5.00%).

Saponaria officinalis L. We use the roots rich in triterpenic saponines, flavones, sugars, albuminoid substances, and mineral substances.

Tussilago farfara L. We only use the leaves due to their content in mucilage, tannins (17.00%), tusilagine, acids (galic, stearic, and palmitic), carotenoids, inuline, phyto-sterines, mineral salts (potassium nitrate, zinc, magnesium, and phosphorus salts), and the flowers, due to their rich content in mucilage, tannin, faradiol, arinidol, rutoside, hiperine, xantophile, phyto-sterine, traces of volatile oil, and mineral salts.

Urtica dioica L. It contains protein substances with a large number of amino-acids, sugars, amines, steroles, ketones, volatile oil, fatty substances, sitosterols, acids (acetic, formic, and pantotenic), vitamins (A, B_2, C, and K), chlorophyll, protoporfirine, coproporfirine, β-carotene, salts (calcium, magnesium, iron, silica, and potassium), and the hairs, duet o their skin blistering substance made up of formic acid, enimes, and toxalbumine.

Verbascum phlomoides L. We use its flowers since they contain mucilage (2.50%), saponosides, verbascoside, tannins, resins, volatile oils, saccharose, carotenoides, phyto-steroles, and mineral substances).

Viola odorata L. We use the flowers duet o their content in volatile oil (0.003%), resins, sugars, viola-quercetine, violamine, mucilage, salicylic acid, and mineral substances.

Viola tricolor L. It contains mucilage, triterpenic saponosides, derivatives and esters of the methyl salicylic acid, mineral salts, and the flowers, duet o their rich content in tannins, volatile oil, β-carotene, gums, yellow flavonic pigment, violaxantines-carotenoides, and vitamin C.

CONCLUSIONS

Research emphasised the presence of 15 species important in the treatment of pulmonary diseases, as follows:

Abies alba Mill. – Pulmonary diseases, emollient, vitaminising, anti-diarrhoeic, expectorant, diuretic.

Althea officinalis L. Cough, bronchitis, laryngitis, and tracheitis.

Hyosciamus niger L. Broncho dilator, anti-asthmatic, inhibitor of intestinal secretions.

Hedera helix L. Anti-cough, anti-bacterial, bronchi anti-spastic, anti-rheumatic, emagogue, and analgesic.

Malva sylvesiris L. Pulmonary secretolitic, anti-inflammatory, expectorant, and emollient.

Papaver rhoeas L. Antiseptic, emollient, sedative, narcotic, anti-cough.

Petasites officinalis Moench. Anti-inflammatory, blood-pressure regulator, anti-septic, sudorific, and expectorant.

Pimpinella saxifrage L. Emollient, galactogogue, expectorant, and anti-inflammatory.

Pinus sylvestris L. Diuretic, disinfectant, anti-septic, cicatriser, anti-spastic, anti-helminthic, and anti-inflammatory.

Plantago lanceolata L. Diuretic, emollient, and anti-inflammatory.

Plantago maior L. Cicatriser, emollient, diuretic, anti-inflammatory, and blood-pressure regulator.

Polygala vulgaris L. Anti-cough, colagogue, anti-flu expectorant, diaphoretic, and anti-asthmatic.

Primula elatior L. Secretolitic and expectorant.

Primula verris L. Emollient, soothing, sedative, expectorant, haemostatic, and sudorific.

Saponaria officinalis L. Diuretic, colagogue, and expectorant.

Tussilago farfara L. – bronchic, antiseptic, expectorant, emollient, and antispastic.

Urtica dioica L. – haematopeic, depurative, haemostatic, emollient, antiseptic, and expectorant.

Verbascum phlomoides L. – sedative, healing, soporific, emollient, anti-inflammatory, and expectorant.

Viola odorata L. – expectorant, blood pressure regulator, emollient, sedative, and diuretic.

Viola tricolor L. – diuretic, expectorant, colagogue, and depurative.

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