

PRELIMINARY ASPECTS CONCERNING THE MEDICINAL FLORA OF THE REDIU FOREST (BOTOȘANI COUNTY)

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Abstract

Rediu Forest is included in the category of protected areas due to its recreation function. It is located in the South-East of Botosani town, 3 km away from it, close to several tourist attractions. The objective of the preset work consists in making an inventory of the medicinal plants species from the Rediu Forest and developing the list of plant utilisations with information from local traditional medicine.

Finds that, few people know the medicinal plant and not to apply the principle of sustainable exploitation of natural resources. Following investigations conducted have identified 63 species of medicinal plants. These plants are included in 29 botanical families and 59 genera. Most representative botanical families about medicinal flora are family: Asteraceae - 9 species; Rosaceae - 7 species, Lamiaceae - 6 species and Fabaceae - 4 species. Because of active principles by containing (essential oils, flavonoids, vitamins, polyhenolic acids, carbohydrates etc.), the organs of species investigated are used to treat a variety of human diseases.

Key words: medicinal plant species, Rediu Forest.

Rediu Forest is included in the category of protected areas due to its recreation function. It is located in the South-East of Botosani town, 3 km away from it, close to several tourist attractions.

Cormoflora of the Botosani County is diverse and has attracted the attention of botanists, for a long time. Their scientific interest in this area has materialized in publishing a large number of papers dedicated to local flora and vegetation (Chifu et al., 2006; Mihai, 1969, 1970, 1971, 1977; Mihai and Sârbu, 1979, 1978; Mititelu et al., 1971, 1974; Mititelu and Haja, 1972; Mititelu and Chifu, 1994). As it is underlined above, few botanists have been published about medicinal flora of this area. The most important contribution to the knowledge of medicinal flora belongs to Mihai (1969). He listed 214 species of medicinal herbs from basin of the Baseu River and contributed to the knowledge of chorology of medicinal plants in the Northern part of Romania (Moldova).

The knowledges about the flora and vegetation of Botosani county are summarized in the paper entitled “Flora and vegetation of the Botosani county” by Mititelu and Chifu, 1994.

Till now, data special referring to medicinal flora in Rediu Forest has not been published yet.

Our paper includes an inventory of this local medicinal flora and intends to develop the list of medicinal plant utilisations with information from local traditional medicine.

MATERIAL AND METHOD

Data concerning the medicinal flora from the Rediu Forest were obtained by the route inventory during the vegetation period, in 2008-2009. Information on the use of medicinal plants is a synthesis of literature and of data obtained from native people, who have traditional knowledge concerning local medicinal plant species.

Plant species were identified using “Illustrated flora of Romania” (Ciocârlan, 1988, 1990).

RESULTS AND DISCUSSIONS

Check list of Medicinal Flora

The medicinal data on 63 plants species belonging to 59 genera and plant 29 families (*table 1*). Most representative botanical families about medicinal flora are family: Asteraceae - 9 species; Rosaceae - 7 species, Lamiaceae - 6 species and Fabaceae - 4 species. Seven botanical families are represented by two species (Oleaceae, Boraginaceae, Rubiaceae, Scrophulariaceae and other). The category of other families included families (16) comprising a single species (Campanulaceae, Primulaceae, Cornaceae, Caprifoliaceae, Malvaceae, Violaceae, Urticaceae and other) (*fig.1*).

Table 1

Check list of Medicinally Important Flora of Rediu Forest (Botosani County). Ethno-medicinal utilisation (by Pârvu 2006, Temelie 2005, Ciulei et al. 1993, Alexan et al. 1988;1991; completed with information gathered from native people)

S. No	Botanical Name	Part used	Plant Family	Ethno-medicinal uses
1	<i>Corydalis cava</i>	Bulbs	Papaveraceae	Parkinson, paralysis, hemiplegia, antihelminthic
2	<i>Arctium lapa</i>	Root	Asteraceae	Kidney diseases, elimination of toxins
3	<i>Prunella vulgaris</i>	Aerial organs	Lamiaceae	hemorrhoids, cough, diarrheic, asthma, wounds
4	<i>Campanula trachelium</i>	Aerial organs	Campanulaceae	Angina throat
5	<i>Ballota nigra</i>	Leaves, flowers	Lamiaceae	Gout, rheumatism, anxiety, palpitations, pertussis, wounds
6	<i>Geum urbanum</i>	Root	Rosaceae	Enteritis, diarrhea, dysentery, leukorrhea, internal bleeding, fever; dental abscesses, gingivitis, wounds
7	<i>Achillea millefolium</i>	Flowers	Asteraceae	Bronchitis, cough, rhinitis, intestinal parasites, eczema, dental abscesses
8	<i>Cichorium inthybus</i>	Aerial organs root	Asteraceae	Liver disease, constipation, fever, rheumatism, migraines
9	<i>Cerasius avium</i>	Fruits, stalks	Rosaceae	Obesity, arthritis, renal diseases, colitis, atherosclerosis, biliary lithiasis, diarrhea, cystitis
10	<i>Primula officinalis</i>	Flowers, root	Primulaceae	Cough, rhinitis, pneumonia, catarrh, migraines, asthma, external bleeding wounds
11	<i>Cornus mas</i>	Fruits, bark, leaves	Cornaceae	Diarrhea, dysentery, intestinal parasites
12	<i>Clematis vitalba</i>	Leaves, flowers	Ranunculaceae	Empirical treatment: cough, wounds, skin inflammation
13	<i>Fragaria vesca</i>	Leaves, fruits	Rosaceae	Diarrhea, enteritis, cystitis; gout, diabetes, kidney and liver diseases, atherosclerosis, stomatitis, wounds.
14	<i>Fraxinus excelsior</i>	Leaves	Oleaceae	Constipation, gout, colds, dysmenorrhea, metrorrhagia, enterocolitis, acne, rheumatism, leucorrhea, hemorrhoids, eczema
15	<i>Galanthus nivalis</i>	Bulbs, leaves, flowers	Amaryllidaceae	Paralysis, paresis of peripheral nerves, leucorrhea, candidiasis)
16	<i>Ficaria verna</i>	Leaves, root	Ranunculaceae	Hemorrhoids, varices; skin diseases
17	<i>Echium vulgare</i>	Aerial organs	Boraginaceae	Dysentery, diarrhea, cough, wounds
18	<i>Hedera helix</i>	Leaves and twigs	Araliaceae	Rheumatism, ulceration, scabies, headache
19	<i>Ligustrum vulgare</i>	Leaves , bark	Oleaceae	Diarhea, leucorrhea, stomatitis, dermatitis, ulceration, rheumatism, sore mouth, scabies
20	<i>Galium aparine</i>	Aerial organs	Rubiaceae	Renal diseases and skin, atherosclerosis, obesity, tonsillitis, pharyngitis.
21	<i>Verbascum phlomoides</i>	Corola	Scrophulariaceae	Bronchitis, laryngitis, asthma, tracheitis, bladder diseases, hemorrhoids.
22	<i>Rosa canina</i>	Flowers, leaves	Rosaceae	Avitaminosis, enterocolitis, peripheral circulation diseases, sedative

S. No	Botanical Name	Part used	Plant Family	Ethno-medicinal uses
23	<i>Mallus sylvestris</i>	Fruits	Rosaceae	Food poisoning, diarrhea, rheumatism, respiratory tract infections
24	<i>Pulmonaria officinalis</i>	Leaves aerial organs	Boraginaceae	Cystitis, hyperacidity gastritis, gastric and duodenal ulcer, diarrhea, bronchitis, laryngitis, tracheitis, renal diseases
25	<i>Matricharia chamomilla</i>	Inflorescences	Asteraceae	Hemorrhoids, disinfectant
26	<i>Malva sylvestris</i>	Leaves, flowers	Malvaceae	Lung diseases, colitis, hemorrhoids, asthma, bleeding, ascites, wounds, skin and eye diseases
27	<i>Geranium robertianum</i>	Aerial organs	Geraniaceae	Cystitis, diarrhea, gastroenteritis, bronchitis, uterine and ovarian cancer, infertility, rheumatism, lung diseases
28	<i>Crataegus monogyna</i>	Flowers	Rosaceae	Heart diseases, hypertension, insomnia, cardiac arrhythmias.
29	<i>Plantago major</i>	Leaves	Plantaginaceae	Atherosclerosis, hypertension diarrhea, hyperacidity gastritis stomatitis, laryngitis, tracheitis
30	<i>Plantago media</i>	Leaves	Plantaginaceae	Atherosclerosis, bleeding, hypertension, diarrhea, hyperacidity gastritis, stomatitis, laryngitis
31	<i>Plantago lanceolata</i>	Leaves	Plantaginaceae	Atherosclerosis, bleeding, hypertension, diarrhea, hyperacidity gastritis, bronchitis, asthma, stomatitis, laryngitis, tracheitis, wounds
32	<i>Taraxacum officinale</i>	All organs	Asteraceae	Biliary dyskinesia, gout, elimination toxins, liver failure, varices, varicose ulcer, obesity, anemia, cataract.
33	<i>Artemisia vulgaris</i>	Twigs and inflorescences	Asteraceae	Sickness
34	<i>Artemisia absinthium</i>	Twigs and inflorescences	Asteraceae	Stomachic, sickness, vermifuge
35	<i>Tussilago farfara</i>	Inflorescences leaves	Asteraceae	Asthma, pulmonary emphysema, pulmonary silicosis, dyspepsia, biliary dyskinesia; laryngitis, tracheitis, wounds, skin diseases
36	<i>Hypericum perforatum</i>	Aerial organs	Hypericaceae	Liver diseases, enterocolitis, hyperacidity gastritis, gastric ulcer, urine incontinence, depression, eczema
37	<i>Prunus spinosa</i>	Flowers, fruits	Rosaceae	Constipation, hypertension, sedative nervous, diuretic; skin diseases, kidney diseases, depurative; diarrhea, tonic stomachic
38	<i>Stellaria media</i>	Aerial organs	Caryophyllaceae	Fatigue, bronchitis, pleurisy, constipation, eczema, psoriasis, urticaria
39	<i>Chelidonium majus</i>	All organs	Papaveraceae	Biliary dyskinesia, pertussis, angina pectoris; diuresis, herpes
40	<i>Evonymus europaeus</i>	Leaves, bark	Celastraceae	Wounds
41	<i>Robinia pseudacacia</i>	Flowers, Bark	Fabaceae	Hyperacidity gastritis, ulcer, asthma, diarrhea, migraines, constipation
42	<i>Vinca minor</i>	All organs	Apocynaceae	Hemorrhages, hypertension, bradycardia, constipation, tonic digestive, healing wounds
43	<i>Glechoma hederacea</i>	All organs	Lamiaceae	Diarrhea, kidney stones, urinary tract diseases, liver diseases, skin diseases

S. No	Botanical Name	Part used	Plant Family	Ethno-medicinal uses
44	<i>Galium verum</i>	Aerial organs	Rubiaceae	Bladder diseases, skin diseases diuretic, depurative, sedative, hernia
45	<i>Sambucus nigra</i>	Flowers, fruits	Caprifoliaceae	Constipation, rhinitis
46	<i>Origanum vulgare</i>	Plant to blossom	Lamiaceae	Dyspepsia, bronchitis, pertussis, asthma, renal colic, enteritis, digestive tonic.
47	<i>Melilothus officinalis</i>	Flowers	Fabaceae	Liver diseases, kidney diseases, rheumatism, varices, insomnia
48	<i>Quercus robur</i>	Bark acorns	Fagaceae	Hyperacidity gastritis, gastrointestinal ulcer, diarrhea, enteritis, hemorrhoids; anemia, leucorrhea, gingivitis
49	<i>Leonurus cardiaca</i>	Flowers, twigs	Lamiaceae	Hypertension, prostatitis, lung diseases, stimulate digestion
50	<i>Tilia tomentosa</i>	flowers	Tiliaceae	Bronchitis, flu, cold, stomatitis, tonsillitis, pharyngitis
51	<i>Tilia cordata</i>	Flowers	Tiliaceae	Bronchitis, flu, cold, stomatitis, tonsillitis, pharyngitis
52	<i>Viola odorata</i>	Flowers, root	Violaceae	Bronchitis, diuretic, laxative, healing wounds
53	<i>Capsella bursa-pastoris</i>	Plant to blossom	Brassicaceae	Angina pectoris, heart failure, atherosclerosis, hypertension internal bleeding, hemophilia
54	<i>Hepatica nobilis</i>	Aerial organs	Ranunculaceae	Liver diseases, gastritis, ascites, bronchitis, chronic tracheitis stomatitis, pharyngitis
55	<i>Trifolium pratense</i>	Flowers	Fabaceae	Diarrhea, renal diseases, gout; ankylosis, rheumatism
56	<i>Trifolium repens</i>	Flowers	Fabaceae	Cold, flu, leucorrhea
57	<i>Polygonum aviculare</i>	All organs	Polygonaceae	Diarrhea, gastric ulcer, intestinal bleeding, gout, metabolic diseases, healing wounds
58	<i>Urtica dioica</i>	Leaves, root	Urticaceae	Hemorrhoids, bleeding, diarrhea, dysmenorrhea, bronchitis, diabetes gout, stomatitis
59	<i>Alliaria officinalis</i>	Aerial organs	Brassicaceae	Asthma, diuresis, healing wounds
60	<i>Veronica chamaedrys</i>	Aerial organs	Scrophulariaceae	Rheumatism; asthma skin diseases, healing wounds
61	<i>Tanacetum vulgare</i>	Inflorescences	Asteraceae	Stomach and kidney diseases
62	<i>Asperula odorata</i>	Plant to blossom	Rubiaceae	Insomnia, phlebitis, antiseptic
63	<i>Ajuga reptans</i>	Aerial organs	Lamiaceae	Angina pectoris, pneumonia, asthma, uterine bleeding, hemorrhoids, leucorrhea, diarrhea; wounds, fractures

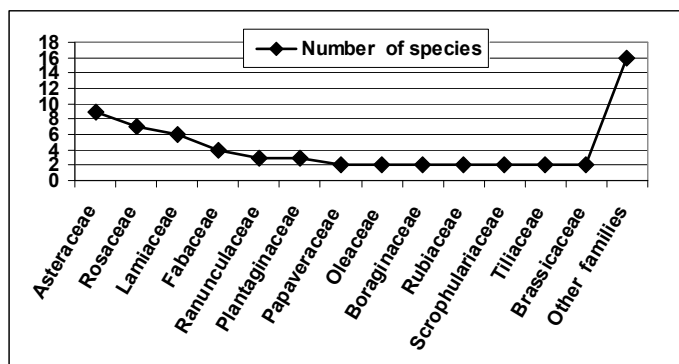


Figure 1 Distribution of the botanical family of medicinal species inventoried

Among the species listed in *table 1*: 7 species are trees, six - shrubs, two are creepers and the rest are herbaceous species, mostly perennial.

Biologically active substances (essential oils, flavonoids, vitamins, polyphenolic acids, carbohydrates etc.) are stored in various organs of plants. These organs are used to treat a variety of diseases (*table 1*)

On the plant organs used medicinally mention: from three species using only subterranean organs; from four species using only leaves; from eight species (representing 12.69% of inventoried species) using only flowers / inflorescences; from five species using both aerial organs (leaves, flowers or fruit) and subterranean; from five species using all organs. From 32 species (representing 50.79% of inventoried species) is used all aerial organs or certain aerial organ (leaves and flowers, fruit).

Some medicinal plant species (*Galanthus nivalis*, *Ligustrum vulgare*) contain substances (alkaloids) in their organs that may be harmful to the body, if the dose is not complied.

Locals are interested in using herbs in the treatment of mild illnesses such as: headache, superficial wounds, digestive tonic, constipation, cough or domestic animal diseases such as digestive diseases, hematuria, dermatoses.

Among locals, who are the majority users of medicinal herbs, are residents of the village Stăuceni, located near the forest Rediu.

The most popular medicinal plant species in the area are: *Chelidonium majus*, *Quercus robur*, *Achillea millefolium*, *Urtica dioica*, *Tilia cordata*, *Origanum vulgare*, *Sambucus nigra*, *Urtica dioica*, *Leonurus cardiaca*.

Plants are combined or simply used in various ways, for internal use (infusion, decoction, tincture etc.) and for external use (poultices, baths, compresses etc.).

Although some plant species are common, for sustainable utilisation of medicinal flora, their exploitation must be done after a quantitative evaluation. We have to know quantity of raw material that is obtained from one species and the yield on drying. Thus, it is proposed that the species *Urtica dioica* to be harvested as a whole and species *Vinca minor* to be harvested up to 30 % of individuals.

CONCLUSIONS

In the investigated area, the medicinal plant species are relatively well known by the native people. They use medicinal plants on diseases such as: diarrhea, cold, flu, skin diseases, headaches etc.

Most people around the forest collect herbs for their own use and some sells medicinal herbs.

Exploitation of natural resources should be a rational action, in order to protect the local biodiversity. Thus, it is better to make an appointment to the exploitation of species in the region, so as to return only after 4-5 years in that region. If the medicinal flora is affected by an irrational exploitation, it is advised to be replanted species in need for restoration the medicinal flora.

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