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SUGGESTIONS FOR THE ANALYSIS OF SOME SPONTANEOUS PLANTS GROWING ON ROMANIAN TERRITORY, CONTAINING NATURAL COMPOUNDS OF THERAPEUTIC INTEREST

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INTRODUCTION

It is not the purpose of this list to make additions to the uses of medicinal plants already known in Romania but to showcase plants that have been given very little attention so far or have never been used or studied for therapeutic purposes.

MATERIAL AND METHOD

It is a theoretical study based on the information accumulated over time and seeks to draw attention to a potential yet untapped in Romania. The lists of Romanian medicinal plants had been compared with those in some foreign works.

RESULTS AND DISCUSSIONS

The list below contains the most important species that should be presented as medicinal plants.

***Alchemilla mollis* (Busser) Rothm**. (creţişoară), perrenial, robust, native to the Carpathians, the Caucasus and Turkey,tall, silky-hairy stem 20-40 cm; basal leaves with long petioles, big leaf lamina, 11 cm wide, with 6-13 semicircular lobes, leaves from the stalk are small, with no petiole or a short one; glabrous inflorescence. It grows sporadically in habitats from meadows and weeds in the beech forests up to the alpine level. In some Western countries, it is grown as a decorative plant.

It contains the flavonoids 3, 3́, 4́, 5, 7, 8 - Hexahydroxy-flavone 3-O-b-D-Galactopyranoside, 7 – O – a - L rhamnopyranoside: Antioxidant (Buckingham J., V. Ranjit N. Munasinghe, 2015).

It has been also used in Romanian phytotherapy for about 5 decades. We believe that *A. vulgaris* and *A. mollis* can be used in the same way.

The extracts from the aerial parts of *Alchemilla vulgaris* have external anti-inflammatory properties in stomatitis and laryngitis, they are internal and external astringents due to tannins, antidiarrheals andantihemoroidal. The decoction prepared from the underground parts of the plant stops bleeding in case of injury, cutting, as it is very rich in tannins; the leaf tea can reduce excessive menstrual flow.Crăciun Fl., Bojor Ov., Alexan M., 1976 - 1977, Burzo I., 2015). It is an average fodder plant (Kovacs Att., 1979; Pop I., 1982), it can be cultivated as ornamental (Milea Preda, 1989).

***Alyssum desertorum* Stapf.**Annual, covered with stellate hairs, straight stem, 5-20 cm tall, flowers, yellow, sepals deciduous, glabrous fruit a few mm silicula.

In Romania, it is common on sandy areas, meadow steppes and oak forests.

It contains 3, 5, 7 – Trihydroxy - 4 ́-methoxyflavone 5 – O – b – D - Glucopyranoside and 7 – O – b – D - glucuronopyranoside (Buckingham J.; V. Ranjit N. Munasinghe, 2015).

In Romania, *A. montanum* has been used for centuries against rabies, it also has appetizer properties, it is edible (Crăciun Fl., Bojor Ov., Alexan M., 1976 - 1977) but also ornamental (Milea Preda, 1989). *A. alyssoides* is toxic (Pop I., 1982).

***Asplenium septentrionale* (L.) Hoffm.** Herb, short, 5-15 cm tall, resembling tufts of grass, linear, forked leaves, sori on the back, elongated,interfluent, covering the whole surface of the segments. It is common in cliff areas, it grows through cracks in the stone.

In the Dictionary of flavonoids, the following substances are mentioned: 3, 4', 5, 7 - Tetrahydroxyflavone; 3 - O - [b- D-Glucopyranosyl – b -Dglucopyranoside]; 4 ́- O – b – D - glucopyranoside: Kaempferol; 3 - sophoroside 4 ́-glucoside (Buckingham J.; V. Ranjit N. Munasinghe, 2015).

***Astragalus glycyphyllos* L.** Stem lying on the ground, leaves with 4-7 pairs of folioles large, ovate-elliptic, 2-4 cm long and 1-2 cm wide, stippeles 1, 5 - 2 cm long, flowers greenish-yellowin short and thick racemes, pods sessile, curved, 3-4 cm long and 4-5 mm wide.

It is spread through thickets in plain areas up to the upper mountain level.

It is used empirically to treat intestinal worms and internal pain (Pârvu C., 2014). It has poor forage value (Kovacs Att., 1979); it can be used in ecological restoration. In the Dictionary of flavonoids, the substance 2 ́,3 ́,4 ́,7-

Tetrahydroxyisoflavan is mentioned (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Astragalus penduliflorus* Lam.** Leaves with 9-12 pairs of folioles, elliptical or linear-lanceolate,stipelles lanceolate, acuminate 3-6 mm wide, 5-10 mm wide; flowers yellow, fruit inflated. It is rare in Romania, it only grows in meadows and steep slopes of the Bucegi, Rodna and Bârsa Mountains. It has the same flavonoid as *Astragalus glycyphyllos*, 2´, 3´, 4´, 7 - Tetrahydroxyisoflavan.

***Blackstonia perfoliata* (L.) Houds**. Stem 10-40 cm tall, with a rosette of basal leaves and completely intergrown leaves. It grows on wet silt; it is threatened with extinction in Romania. It was identified in Cluj and Suceava Counties, it is a herbarium specimen only in Constanta (Ciocarlan V., 2000).

It contains a flavonoid named Isorhamnetin 3-glycosides.

***Briza media* L**. (lacrimile miresii) 20-50 cm tall, inflorescence paniclepiyamidal lax, 15 cm long, branches thin, flexuous, with few spikelets, wide-ovate-cordate or subrotund-cordate laterally compresed, 4-7 mm long, thin peduncles. It is common in mountainous areas, meadows, forest edges, scrubs, and sometimes in plain areas.

It has poor forage value (Kovacs Att., 1979; Pop I., 1982), can be cultivated as ornamental (Milea Preda, 1989).

It contains the flavonoids: 8 – C – b – D – Galactopyranosyl - 4´, 5, 7 - trihydroxyflavone; 8 – C – b – D – Glucopyranosyl - 3́, 4́, 5, 7 - tetrahydroxyflavone; 8 – C – b – D – Glucopyranosyl - 4´, 5, 7 - trihydroxyflavone 4 ´(Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Bupleurum falcatum* L.** Stem 20-50 cm tall, leaves falcate, oblong-spatulate or attenuated into petiole, acute tips, the involucre and the involucel have linear-lanceolate folioles.

It is commnon in habitats from plains up to the subalpine level, meadows, forest edges, thickets, thinned forests, rocky places.

The roots have anti-inflammatory, hemolytic and antipyretic properties.The extracts may be used for the treatment of chronic hepatitis, nephritis, in China and Japan; they are used for the treatment of autoimmune diseases because they contain saikosaponins with antitumor effect (Khare C.P., 2007).

***Campanula glomerata* L. (**ciucure), perennial, 30-60 (80) cm tall,lower leaves withlong petiole, base cordate, truncated, rounded or sharply narrowed into petiole, flowers grouped in a terminal glomerule, sometimes in bunches or laterally, axillary, with subulate sepals.

It is spread sporadically in plain areas up to the subalpine level, meadows, thickets, thinned forests, grassy rocky areas, fields around settlements.

The following substances have been isolated: Isorhamnetin 3 - glycosides 3 – O - [a – L – Rhamnopyranosyl – b - Dgalactopyranoside]; Keioside; Isorhamnetin 3 - robinobioside; Quercetin 3, 7 - diglycosides; 3 – O – b – D - Galactopyranoside; 7 – O – b – D - glucopyranoside: Quercetin 3 - galactoside 7 - glucoside and campanuloside (Buckingham J., V. Ranjit N. Munasinghe, 2015).

It can be grown as a decorative plant (Milea Preda, 1989).

***Campanula persicifolia* L.** Perennial, 30-80 cm tall, flowers large, blue, 3-5 cm long, sepals linear-lanceolate, 2-3 mm wide.It is common is meadows, thickets, grassy rocky areas, rarely in silvosteppe.

It can be grown as a decorative plant (Milea Preda, 1989).

It contains the flavonoids: 3 ´,4 ´,5,7-Tetrahydroxyflavone 3´-O-b-D-Glucopyranoside; 7-O-[a-Lrhamnopyranosyl-(106)-b-D-glucopyranoside]; Luteolin; 3 ´- glucoside 7 - rutinoside [Buckingham, J.; V. Ranjit N. Munasinghe, 2015].

***Centaurea phrygia* L.** Perennial, 40-100 cm tall,ovoid calathidiums, 16-20 mm long and 14-18 mm wide, folioles involucral green, nerve-ribbed, appendiges brown-blackish, 4-6 mm, the external and medium ones with 10-12 fimbriae each, the internal ones complete; lilac-reddish flowers, achenes 3-4 mm long. It is common in meadows and on the margins of the forests in mountainous areas, and, sometimes, it also occurs in holm oak forests.

Centaureea pseudophrygia (C. A. Mey) Gugler has been used empirically in stomach pains and gallstones (Pârvu C., 2014).

It contains the flavonoids 3 – Demethoxycentaureidin, Desmethoxycentaureidin. It has antitumoral effect on human gastric and uterine cells (Khare C.P., 2007). In Romania it is used empirically in kidney diseases, muscle spasms, leucorrhoea (Pârvu C., 2014).

***Centaurea triumfetti* All.** Stem 5-25 cm tall, white tomentose, unbranched, with leaves towards the top, ending with a single calathidium; leaves 7 cm long and 4-8 mm wide, slightly decurente, entire, sometimes pinnate, persistent grey tomentose on the upper side, white tomentose on the underside; appendiges of involucral hypsophile brown, with a decurente edge, 0,3-2 mm wide, fimbriae 2-3 times longer than the width of the integral part.

It grows sporadically in meadows and grassy rocky areas, from the hilly region up to the lower alpine level.

It contains 6 – C – b – D – Glucopyranosyl - 3´,4´, 5, 7 - tetrahydroxyflavone (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Ceratophyllum demersum* L.** (cosorul bălților) Submersed herb in stagnant or slowly flowing waters, it sometimes occupies a large biovolume in water, filamentous, branched stem,

dense whorls of leaves 1-2 times dichotomically branched, thorny fruit.

In Romania, it is studied ecophysiologically in detailby A. Sârbu, its therapeutic properties have not been discovered, it was considered toxic by I. Pop.

It is rich in protein, calcium and magnezium. It can be used as a purgative, antibilious, antibacterial. The dose is 10-20 ml juice or 50-100 ml decoction per adminsitration. (Khare C.P., 2007).

Ceterach officinarum **DC.** (unghia ciutei) Perennial, with rhizomes, numerous leaves grouped in tufts, 5-20 cm tall, a short petiole, leaf lamina green on the upper side and brown-silver on the underside.

It is sporadically spread on limestone cliffs, frequent in the Banat Mountains, it has been attributed diuretic and astringent properties; it is almost unused (Crăciun Fl., Bojor Ov., Alexan M., 1976 - 1977).

In the Dictionary of flavonoids, the following substances are described: 4 ′, 5, 7 - Trihydroxyflavanone 7 – O - [a – L – Rhamnopyranosyl – b - Dglucopyranoside]: Naringin. Naringenin 7 - neohesperidoside. Naringoside. Kaempferol 3 - glycosides 3 – O - (6 – O – Malonyl – b – D - galactopyranoside):

Descurainia sophia **Webb. Et Berth.** Annual or biannual, 20-50 (70) cm tall, branched at the top, covered with star-shaped hairs; leaves green, also covered with star-shaped hairs, 3-16 cm long, 2-3-pinnate , with liniar laciniae.

It grows on abandoned fields in localities or cultivated ones, from the plain area up to the montane level.

The seeds are used instead of mustard in the Caucasus, the ash is rich in potassium nitrate (E.I. Nyarady, 1953). We do not know why it is also considered a toxic plant (Pop I., 1982).

The leaves and flowers are astringent and antiscorbutic. The seeds have expectorant, anti-inflammatory, febrifuge and antidysenteric properties. The aerial parts of the plant have antiviral, hypoglycemic properties, so they can be used to treat ulcers. The seeds used externally can replace the *Sisymbrium irio* ones (Khare C.P., 2007).

The seeds contain the phenols Kaempferol 3, 7 - diglycosides; Quercetin 7 - glycosides; Quercetin 7 - gentiobioside (Buckingham, J.; V. Ranjit N. Munasinghe, 2015).

Dryas octopetala **L.** (argin□ică)Small undebrush, highly branched stems, with maximum 2-10 cm ramifications above the ground, leaves with short petioles, with evergreen, elliptical or cordate stipelles, 1-2,5 cm long, 0,3-1 cm wide, with white crenatemargins, a little twisted.white tomentose on the underside; flowers 2-4 cm in diameter, long pediceli with 8 (-9) sepals, (7-) 8 (-9) white, obovate petals, 10-18 mm long and 6-12 mm wide.

It grows in rocky areas, mainly the limestone ones, moraines and silt from the alpine level. It can be grown as a decorative plant in the montane areas (Milea Preda, 1989).

The following flavonoids are known: 3, 4′, 5, 7 – Tetrahydroxy - 3, 8 - dimethoxyflavone;

3, 4 ′, 5, 7 – Tetrahydroxy – 8 - methoxyflavone;

3, 3', 4', 5, 7 – Pentahydroxy – 8 - methoxyflavone (Buckingham J., V. Ranjit N. Munasinghe, 2015)

Elsholtzia ciliata **(Thunb.) Hill.** (busuioc vietnamez) Stem 30-50 cm tall, erect, simple or branched, leaves long, ovate elliptical, sharp, 2-7 (10) cm long and 1-3 (4) cm wide; inflorescence a spike 2-6 cm long and 1 cm thick, situated in the armpit of the leaves, lilac flowers,broad, imbricated, acuminate bracts. It grows in the gravel in meadows, ruderal land, orchards and gardens in hilly and montane areas.

It contains the flavonoids C 7 – O – a – D - Galactopyranoside and 4 - Me ether: 6, 7 – Dihydroxy - 4′- methoxyflavone

It stimulates the growth of blood stem cells (Buckingham J., V. Ranjit N. Munasinghe, 2015)

Frankenia pulverulenta **L .** Annual, 10 -20 (30) cm tall, stem herbaceous, leaves obovate or oblong-spatulate, usually flat. It is rare in Romania, it grows in steppe areas on coastal sands and salty sands. The leaves are of interest in phytochemistry. Of the flavonoid substances described, we mention here:

Isorhamnetin 3 - glycosides;

7 – O - Sulfate, 3 – O – b – D - glucuronopyranoside;

7 - O-Sulfate, 3 – O – b – D - glucuronopyranoside;

7 – O - Sulfate, 3 – O – b – D -glucuronopyranoside;

Kaempferol 3-glycosides;

7 – O - Sulfate, 3 – O – b – D - glucuronopyranoside;

3, 3́, 4́, 5, 7 – Pentahydroxy – flavone 7 - Sulfate: (Buckingham J., V. Ranjit N. Munasinghe, 2015)

Gentiana verna **L.** (ghinţura de primăvară). Perennial, stem 3-12 (25) cm tall, basal leaves grouped in rosette, shape elliptical-lanceolate, sometimes acute, 3-nerved, 2-4 times longer than wide, corolla intense azure blue, rarely purple, pink or white, tube 25 mm long, laciniae wide-elliptical.

It grows in meadows and grassy alpine cliffs.

In Romania it is used empirically in anorexia (Pârvu C., 2014).

It contains the flavonoid 6 – C – b – D – Glucopyranosyl - 3′, 4′, 5, 7 - tetrahydroxyflavone, constituent of the leaves, similar to *G. asclepiadaea* (Buckingham, J., V. Ranjit N. Munasinghe, 2015).

Geranium silvaticum **L.** (fratele priboiului) Perennial, with rhizomes from which a few stems rise, 30-70 cm tall; basal leaves palmate 7 - partite, hairy only on the nerves, petioles 15-30 cm long, leaves on top short-petiolate; flowers red-purple, fruit valves with glandular hairs.

It grows frequently in meadows, thickets, weeds, only in montane areas, at beech and spruce forests level, sometimesat subalpine level.

It contains the flavonoid 3, 3 ´, 4 ´, 7 – Tetrahydroxy - 5, 5́ - dimethoxyflavyliu identified in flowers (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Hieracium umbellatum* L.** (iarba vulturului). Perennial, with rhizomes, stem 10-100 (150) cm tall, leaves thickwith revolute margins, inflorescence branched, shape umbrella-like, calathidiums ovoid with yellow flowers and external recurved involucral folioles.

It is common in meadows, forest edges, thickets of the steppe zone up to the spruce forest level.

It contains 3´, 4, 5, 7 - Tetrahydroxyflavone (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Ilex aquifolium* L.** Shrub, leaves evergreen 3-8 cm long and 3-4 cm wide, shiny, rigid, triangular tooth-like projections around the edges, each ending with a thorn, 2-3 mm; dioecious flowers, white, fragrant, type 4; fruit red drupe. It grows in Romania only in Dosul Laurului - Zâmbru locality in Arad County.

It is grown as a decorative plant (Milea Preda, 1989). In traditional medicine, it is used in epilepsy. It contains ilicinea (a bitter principle), ilexanthin, theobromine (only in the leaf) and caffeic acid. Alkaloid theobromine is used for asthma.The leaves are diaphoretic, febrifuge, and useful in catarrh, pleurisy, intermittent fever, rheumatism. The fruits are violent emetic and purgatives, can be used as an astringent to check bleeding. The plant extract has caused the overall decline in blood pressure for rats (Khare C.P., 2007).

***Impatiens balsamina* L.** Grassy, cultivated, stem fleshy, 20-60 cm tall, leaves 8-15 cm long and 1,5-2 cm wide, 1-2 flowers, lilac pink, with a thin spur, inserted in the armpit of the leaf.

It has the following effects: cathartic, diuretic, antirheumatic.

The flowers are used for the treatment of burns and scalds. In China, the aerial parts are used to treat rheumatic fever. In Japan, the juice obtained from the white petals treats dermatitis, including urticaria.

The internal use is contraindicated to people with a tendency towardsrheumatism, gout, kidney stones and hyperacidity. It must be consumed only boiled or dried because of the high mineral content (Khare C.P., 2007).

***Iris spuria* L.** Perennial, 40-80 cm tall, leaves at the top of the stem shorter than the internodes, external lilac tepals with purple nerves and a yellow central stripe. It is almost rare in wet meadows and slightly salty soils, from plain areas up to the beech forest level.

Most of the flavonoids identified are part of the rhizomes, we mention hereIrispurinol**;** 3´, 6 – Di - Me ether, 4´- O - [b – D – glucopyranosyl – b – D - glucopyranoside]: 1, 9, 10, 11 - Tetrahydroxy[1] – benzopyrano [3, 4 - b] [1] benzopyran -12 (6H) - one;
2´, 5, 7, 8 - Tetrahydroxyflavavone;
2´, 5, 6, 7 - Tetrahydroxyisoflavone;
2´, 5, 7, 8 - Tetrahydroxyisoflavone;
4́, 5, 7 – Trihydroxy – 6 – methoxy - isoflavone (Buckingham, J.; V. Ranjit N. Munasinghe, 2015)

***Juncus litoralis* C.A.Mey.** Perennial, robust, 60-150 cm tall, stemrigid, cylindrical, leaves cylindrical, pungent, the flower stem with no leaves at the top, with a pungent bract as long as the inflorescence, the folioles of the perigone half the length of the capsule, capsule globular-ovoid. It is rare in Romania, it develops only on the salty seaside sands and the ones from the Danube Delta.

The following substances are known: 3 ´, 4 ´, 5, 7 - Tetrahydroxyflavone;
4´, 5, 7 – Trihydroxy – 3 ´- methoxy - flavone;
5, 7 – Dihydroxy – 2 - (4 – hydroxy – 3 - methoxyphenyl) - 4H – 1 – benzopyran – 4 - one;
Chrysoeriol; Scoparol; Luteolin 3 ´-methyl ether antioxidative and antimutagenic activity (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Juncus effusus* L.** Stem green, 40-120 cm long, glossy, finely striated, continuous medulla, podsbrown or reddish-brown, inflorescence lax, capsule slightly elongated on top, with the rest of the style inserted in the depression. It is common in wetlands, from plain areas up to the spruce forest area. In Romania, the rhizome from *Juncus inflexus* is used intraditional remedies for kidney diseases (Crăciun Fl., Bojor Ov., Alexan M.,1976 - 1977).

In the Dictionary of flavonoids, the following substance is described 4´, 5, 7 – Trihydroxy - 3 - methoxy - flavone, the medulla has antilithic, diuretic, depurative, and pectoral action. The roothas diuretic properties (Khare C.P., 2007).

***Lathyrus nissolia* L.** Annual, stem 20-50 cm tall, rigid, with pronounced edges; leaves simple linear-lanceolate, 1-2 purple flowers. It is commonly spread in meadows and thickets of plain and hilly areas.

It contains the flavones 3, 9, 10 - Trihydroxypterocarpan: Nissolin, Astrapterocarpan (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Loiseleuria procumbens* (L.) Desv.** A dwarf shrub, creeping, highly branched, leaves glabrous, opposite, 4-7 mm long and 2 mm wide, obtuse, with revolute margins, flowers pink, 5 stamens with no appendiges, they open into channels on the sides.

It contains 3 - (4 - Hydroxyphenyl) – 1 - (2, 4, 6 - trihydroxyphenyl) - 1- propanone.

***Lycium barbarum* L.** (cătina de garduri). Tall shrub, 1-2,5 m tall, numeorus thin branches, flexible, thorny, leaves simple, lanceolate, 20-30 mm long and de 3-8 mm wide; flowers purple, grouped in axillary bundles, 1-6 flowers each. It is cultivated and sub-spontaneous.

It has immunostimulatory, antiproliferative, anti-aging and antioxidant properties. The leaves contain flavonoids (Quercitină 1,28-1,58%) which act against the bacteria *Escherichia coli, Staphilococcus aureus*, quercetin acts against the

fungus *Candida albicans*. The olysaccharides extracted from fruits have anti-aging, immunostimulatory, anticancer, antioxidant, and antimutagenic effects (they prevent side effects of chemotherapy). Alkaloid concentration in buds is 1,26%; in fruits 1,24%; in roots 0,6% (Khare C.P., 2007). The fruits were consumed in the nineteenth century by the people of Bucovina (S. F. Marian, 2010), Alkaloids atropine (0.95%) and hyoscyamine (0.33%) isolated from this plant are also present in other species of the family Solanaceae. The fruit peel and the dried roots reduce cholesterol by preventing absorption in the digestive tract. The cerebrosides from the fruits have hepatoprotective activity (Khare C.P., 2007).

***Mollugo cerviana* (L.) Ser.** Rare herb, short, stem very thin, 10 cm long; leaves linear, lower leaves grouped in rosettes, upper leaves grouped in whorls. In Romania, it grows sporadically on sands in Dolj, Olt, Galați and Satu - Mare Counties.

According to Indian medicine, the aerial parts have stomachic, appetizer, febrifuge, antiseptic, blood purifying (used for sexually transmitted diseases), emmenagogue, antibacterial and cardiac stimulatory properties. The root is used in rheumatism and gout (Khare C.P., 2007).

***Muscari comosum* (L.) Mill.;** bulbous perennial plant, 30-90 cm tall, leaves liniar 25-50 cm long and 10-20 mm wide, inflorescence 10-40 cm long. Sterile flowers 10-30 mm, fertile flowers 4-10 mm, 9-14 mm in fruition; fertile flowers with teeth of perigonium yellowish. It grows sporadically in plain and hill areas, meadows, fallow lands, thickets, thinned forests, sands.

In contains the flavonoids 3 - (3, 4 - Dihydroxybenzyl) - 5, 7 – dihydroxy – 4 - chromanonewith anti-inflammatory activity; 5, 6, 7, 8 – Tetrahydroxy – 3 - (4 - hydroxybenzyl) -4 - chromanone;
4´, 5, 7 – Trihydroxy – 8 - (4 -hydroxybenzyl) flavone. (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Odontites luteus* (L.) Clairv**. Herb semi-parasite, 10-50 cm tall, leaves opposite, linear, entire or with small teeth. Flowers yellow, 5-8 mm long, stamens longer than the corolla. It grows sporadically on dry land, from plain areas up to sub-alpine level.

It contains the flavonoids 4´, 5, 7 – Trihydroxy - 3´ – methoxy - flavone; 7 – O - [Galactosyl - (1ó) - galactoside]: Ortanthoside;

Chrysoeriol 7 - digalactoside (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Onobrychis viciifolia* Scop.** Perennial, 30-70 cm tall, leaves imparipenate, corolla carmine-red, 10-14 mm long; pods 5-8 mm long and 6-8 teeth on the edges. It is common in meadows, from plain areas up to the mountains. Sometimes, it is cultivated as fodder.

It contains the flavonoid 2´, 4, 4´- Trihydroxychalcone (Isoliquiritigenin) with antidiabetic and antitumor effects. Antioxidant, anticancer, anti-inflammatory, antimutagenic and antifungal effects are similar to those of *Trifolium subterraneum* (Khare C.P., 2007)

In the Dictionary of flavonoids, there are also 2 - (2, 4 - Dihydroxyphenyl) - 5, 6 - dihydroxybenzofuran, Antifungic; 3, 4´, 7 - Trihydroxyflavanone; 3, 3´,4, 4´,5, 5´, 7 – Heptahydroxy - flavan (Buckingham J., V. Ranjit N. Munasinghe, 2015)

Polygala sibirica L. Perennial, 10-20 cm tall, rare and little known in Romania, it grows in hilly areas; lower leaves elliptical, upper leaves ovate-lanceolate or lanceolate; racemes with 5-10 flowers, green, the wings of the flowers asymmetrical, stamens 1/5 longer than the corolla, capsule subrotund, 5 mm diameter.

Accordind to Indian medicine, the leaves are used in spermatorrhea as a kidney tonic, The boiled roots used internally have expectorant properties in case of colds and coughs and diuretic properties in bladder inflammations. They are used externally in breast abscesses and boils (Khare C.P., 2007).

***Polygonatum verticillatum* (L.) All.** Perennial, with rhizome, 30-60 cm tall, leaves sessile, linear-lancelolate, grouped in 5-20 whorls, flowers grouped in the armpit of the leaves, red berry fruit. It is common in woods and thickets in the hilly and mountainous areas.

It is used in tibetan medicine to treate consumption, senility, lung diseases. Dried rhizomes are raw material for salep, containing 6,2- 9% diosgenin. The Himalaya nations consider it poisonous (Khare C.P., 2007).

***Pyrola chlorantha* Sw.** Glabrous, creeping rhizome, stem 5-30 cm tall, leaves ovate revolute, tip obtuse, flowers arranged in raceme, lax, sepals acute ¼ the lenght of petals, corolla greenish or yellowish green, campanulate, open inflected style.

It is widespread in hilly and mountainous forests.

It contains 3, 3́, 4́, 5 – Tetrahydroxy – 7 - methoxyflavone (Rhamnetin).

***Pyrola rotundifolia* L.** It differs from the previous species by rounded leaves at the base, sepals lanceolate, acuminate, style 6-10 mm long, thickened below the stigma. It is spread in forests, thickets and meadows, from the hilly region up to the lower alpine level.

It is astringent and antilithic, used to treat wounds. In Chinese medicine it is used to treat arthritis, it contains antioxidants. In Indian medicine, it is prescribed for excessive menstrual bleeding, bloody stools, haemorrhage and ulcers. (Khare C.P., 2007).

In Romania it is known for treating wounds, dropsy, small internal bleeding, gastrointestinal bleeding, urinary stones, removing sodium and calcium salts in the body, kidney stones, renal colics, contusions, diarrhea .

***Pulicaria dysenterica* (L.) Gaertn.** Perennial, leaves cordate-amplexicaule at the base, calathidiums 15-25 mm in diameter when in bloom, radial flowers much longer than the disk; it is diuretic. It is common in the steppe up to the beech forest level, on wet and ruderal meadows.

The root is antidiarrheal. The leaves are antiasthmatic (4).It contains 3´, 5, 6 – Trihydroxy - 3, 4´, 7 – tri - methoxyflavone (Oxyanin B, Oxyayanin B) (Buckingham, J.; V. Ranjit N. Munasinghe, 2015)

***Ranunculus sceleratus* L.** Stem glabrous, fistulous, flowers small, 2-4 mm petals, receptacle much elongated to fruition, achenes up to 1 mm long. It is common in plain areas up to the beech forrest level, on riverbanks, marshy lands, ditches with water.

When it is very fresh, it has sour taste, it is rubefacient, vesicant and toxic, it causes inflammation of the digestive tract. It is used after drying or as homeopathic remedy in skin diseases. It contains protoanemonin which is antibacterial, antiviral, vermicide, effective against Gram + and Gram – bacteria, similar to penicillanic acid, it inhibits *E. coli, Staphilococcus aureus and Candida.* It is used in powder form obtained from the whole plant, the dose is 1-3 grams per administration (4).

***Ranunculus trichophyllus* Chaix.** Aquatic, leaves laciniate, lower leaves long petiolate, upper leaves more or less sessile, flowers 8-14 mm in diameter, 25-35 nucules 1,5 mm long, more or less ovate in shape, usually very hairy. It is common in stagnant or slowly flowing waters.

It is used in intermittent fever, rheumatism, asthma (Khare C.P., 2007).

***Ranunculus muricatus* L.** 10-50 cm tall, stem procumbent, ascending or erect, fistulous, branched; basal leaves petiolated, round or kidney-shaped, 3-5 lobed, with broad segments; large nucules, 7-8 mm long, bilaterally compressed, with small spineson both sides, rostrum up to 3mm in lenght.

It is very rare in Romania, it grows in marshy lands, in Galați and Sibiu Counties.

It has rubefacient, vesicant and narcotic effects. It can be used in intermittent fever, gout, asthma (Khare C.P., 2007).

***Rumex dentatus* L.** (*R. limosus* Thuill.) Annual, lower leaves petiolate, spaced; fruit valves 4 mm long and 2 mm wide, with granules on their surface and rigid teeth as long as the width of the valves. In Romania, grows the subspecies*halacsyi* (Rechb.) Rechb. fil.The species is rarely spread in Danube Delta, in humid areas. Not to be confused with *R. palustris* which is frequent in Romania but its properties are not yet known.

It has astringent effect, used in skin diseases. The leaves contain 115 mg vit C./100 gr.11 700 U.I. vit. A, Ca, 7,8% flavonoids/100 gr. dried vegetable product, 0,04 % anthraquinone derivatives**.** The roots contain crizofanic acid, emodin, 0,13% anthraquinones (Khare C.P., 2007).

***Rumex maritimus* L.** Root reddish; stem 10-50 cm tall, lower leaves ovate-lanceolate, 30 cm long and 5 cm wide, those on the stem are lanceolate; fruit teeth much longer than the width of internal valves, granules with acute tip.

The leaves contain anthraquinones both in free and bound forms; when administered internally, they have cathartic action, they are used externally on burns.The fruits contain 0,12% rumarin. The seeds have aphrodisiac properties, they are as effectivea sexual tonic as those of *Sida cordifolia* and *Abutilon indicum*. The roots substitute Rubarba, they have purgative effects, they contain tannins (6%), chrysophanic acid, sucrose (Khare C.P., 2007).

***Rumex scutatus*L.** Perennial with woody rhizome, 10-50 cm tall, lower leaves petiolate, the lenght of the leaf lamina is equal to the width, shape hastate; pedicelli articulated. It is rarely spread in the montane and subalpine level, on limestone scree.

In Romania,it is consumed in some localities (I. Pop, 1982); in Indian medicine, it is known as refringent, astringent, useful in dysentery(Khare C.P., 2007).

***Salix daphnoides* Vill. (**salcie brumărie), 5-10 m tall, shoots blue-greyish white, leaves oblong-lanceolate, ovate stipelles with the base more or less cordate. It is sporadic in gravel-bed river areas from the oak forest up to the beech forest level. It contains 4,9- 5,6% salicylates. It has the same uses as *Salix fragilis* (3,9- 10, 2% salicylates) and *Salix purpurea* (3-9 % salicylates) (Khare C.P., 2007), the flavonoids 2, 4, 4´, 6 - Tetrahydroxychalcone, the flavones 2´- O – b – D - Glucopyranoside, Isosalipurposide. Phlorizin chalconeInhibitor of bovine intestinal mucosaglutathione reductase type VII. (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Scutellaria galericulata* L. (**mirgău). Stems10-50 cm tall, leaves oblong-ovate or wide lanceolate, 2-5 (7) cm long and 0,5-1,5 wide, base slightly cordate, margins slightly crenate, calyx glabrous or more or less pubescent, but not-glandular. It is common in marshy meadows, rush-beds, water banks, riverside coppices, from the plain area up to the montane level.

It has a relaxing and restorative effect on the central nervous system, vasodilator of the brain and the central nervous system, sedative, antispasmodic, anticonvulsant. It is used in stress, sleep disorders, menstrual tension, headaches, migraines, neurological and neuromuscular disorders, epilepsy. All parts of the plant contain flavonoids and glycosides (Khare C.P., 2007).

***Salsola kali* L.** 10-60 cm tall, highly branched from base, alternate leaves, sessile, 6 cm long, 1 mm wide, with spiny tip, solitary flowers in the armpit. Tepals membranous-winged to fruition, with wide wings. It is spread sporadically on sands, gravel, fallow and deserted lands, places where the vegetation was destroyed.

The fresh plant juice has cathartic action, the seeds have a strong diuretic effect, the alcoholic extract has antimicrobial activity against *Salmonella paratyphi* and *Serratia marcescens* (Khare C.P., 2007).

***Sedum album* L.** Perennial, succulent, 8-20 cm tall, leaves cylindrical, glabrous, 6-12 mm long and 2-4 mm wide, with numerous flowers, white or sometimes pink, type 5. It is spread sporadically on rocky and limestone places.

It contains Isorhamnetin 3, 7 - diglycosides (Isorhamnetin 3 - rhamnoside 7 - sophoroside);
3´,4´,5, 7 – Tetrahydroxy – 3 – methoxyflavone (Isorhamnetin 7 - sophoroside).

***Sedum sexangulare* L.** Leaves vivid green, smooth, cylindrical, linear, leaves of sterile shoots are inserted in 6 rows, petals acute, vivid yellow, twice as long as the calyx. It is spread on dry, sandy and rocky soil, from plain area up to the montane level.

It contains the flavonoids 3, 3', 4', 5, 7 – Pentahydroxy – 8 - methoxyflavone;
3, 4´, 5, 7 – Tetrahydroxy - 3´, 8 - dimethoxyflavone (Buckingham J., V. Ranjit N. Munasinghe, 2015)

***Sisymbrium irio* Linn.** Annual or biannual herb, it grows in localities, glabrous, leaves deeply lobed, flowers with petals pale-yellow, 3 mm, siliqua 3-4 cm. It is very rare in Romania.

The seeds have expectorant, recovery, febrifuge, rubefacient, and antibacterial properties; they are used in asthma. Ethanol extract of seeds is antibacterial, antipyretic, analgesic.

The leaves are rich in vitamin C (176 mg %), β- carotene (10 000 u.i.la 100 gr) and minerals.They are used in throat and chest infections (Khare C.P., 2007).

***Sisymbrium loeselii* Linn.** Annual or biannual herb, 30-80 cm tall, branched at the top, leafy, covered with hairs. Upper leaves petiolate, lobed; flowers with yellow petals 4-7 mm, fruit a silique with a 0,5 mm long rostrum, seeds 0,7-1mm. It is common in plain and hilly areas.

It is used in scrofula and as antiscorbutic. Seed oil contains erucic acid and large amounts of tetracosenoic acid. The plant contains alkaloids, organic acids, tannins, glycosides, saponins, coumarins and flavonoids (Khare C.P., 2007). It was considered toxic in Romania (I. Pop, 1982).

***Stratiotes aloides* L.** Aquatic, leaves grouped in a rosette, rigid, with 3 edges, teeth with thorns on the edges. It grows in stagnant or slowly flowing waters, ponds, marshes, during flowering it floats on the water surface.

It contains 3´, 4´, 5, 7 - Tetrahydroxyflavone; 4´, 5, 7 – Trihydroxy - 3´– methoxy - flavone;

***Tetragonolobus maritimus* (L.) Roth.** Perennial with underground stolons, stem 10-30 cm tall, stipelles intergrown at the base of petiole giving the appearance of leaves with 5 folioles, pods with 5 longitudinal wings. It is spread sporadically in plain and hilly areas on grassy soils, clay soils, and sometimes on peaty and salty fields.

It contains Phytoalexin which is an antioxidant and antiallergic agent; 2 - (2, 4 - Dihydroxyphenyl) - 6 - hydroxybenzofuran (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Tribulus terrestris* L.** Annual herb, pubescent, stem repent, 10-60 cm tall. Opposite leaves with 5-8 pairs of folioles, flowers yellow, the fruits enfold in 5 spiny nucules. It grows on more or less sandy soils, road edges, dry fields.

It contains the flavonoids: Isorhamnetin 3 - glycosides
3 – O - [4 – Hydroxy – E – cinnamoyl -(06) – b -
D - glucopyranoside]: Isorhamnetin 3 - (6 - p-coumaroylglucoside) (Buckingham, J., V. Ranjit N. Munasinghe, 2015)

Roots and fruits have cordial, hypotensive, hypoglycemic, diuretic, aphrodisiac, hypolipidemic properties. They can be administered in doses of 3-6 grams of powder (Khare C.P., 2007).

***Trifolium hybridum* L.** Stem 30-60 cm tall, calyx with unequal teeth, corolla white-pink. It grows spontaneously in wet meadows at waters edges, from plain area up to the montane level. It is sometimes cutivated.
It contains the flavonoids 3 – Hydroxy – 9 - methoxyptero-carpan;
2´, 4´, 7- Trihydroxyisoflavan;
7 – Hydroxy - 3´,4´- methylene - dioxyisoflavone (Buckingham J., V. Ranjit N. Munasinghe, 2015).There are used leaves and flowers of young plants.

***Trifolium subterraneum* L.** Capitula with 2-5 fertile flowers and numerous sterile flowers, they are attached to the soil or penetrate the soil where maturation occurs. Some varieties are rich in isoflavones that can negatively affect animal fertility; genetic improvement has reduced this problem. It is widely used in ecological restoration. Rare in Romania, it grows on salty sands in Arad, Timiș, Dolj and Mehedinți Counties.

The following flavonoids are described: Irilone; 3, 4´,7 - Trihydroxyflavone; 2, 4´,5, 7 - Tetrahydroxyisoflavanone;
2´,3, 4, 4´ - Tetrahydroxychalcone; 2´, 4, 4´- Trihydroxychalcone Isoliquiritin; Isoliquiritoside is an anti-inflammatory agent and an anti-tumor pancreatic promoter; 3, 3', 4', 7 - Tetrahydroxyflavone; 7 – Hydroxy - 4´- methoxyisoflavone; Formononetin (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Typha laxmanii* Lepechin.** 80-150 cm tall, leaves narrow-linear, 2-5 (7) mm wide, with the vagina of the second leaf auriculate, the male spike at a distance of 2,5 cm from the female spike, 2cm thick. It grows sporadically on riverbanks and wetlands of the steppe region and in oak forests. The stamens are astringent and styptic. It has external uses (Khare C.P., 2007).

***Vaccaria hispanica* (Mill.) Rauschert.** 30-70 cm tall, branched dichotomically in the upper part, leaves ovate - lanceolate, flowers pink, with long pedicelli, fruit capsule dehiscent by four teeth. It is a herb spread sporadically in plain and hill areas.

The roots are used in cough, asthma, breathing problems, icterus, spleen diseases (Khare C.P., 2007).

***Vallisneria spiralis* L.** Aquatic, submersed, leaves soft, flat, ribbon-shaped 20-80 cm long, fruit peduncle filamentous and coiled. It grows sporadically in ponds and slowly flowing waters in plain and hill areas.

It can be used for the stomach, as a refreshing agent, demulcent and in leucorrhoea and spermatorrhea (Khare C.P., 2007).

***Vicia angustifolia* L.** Stem 40-50 cm tall, folioles 2-5 mm wide, petals purple 10-18 mm long, calyx teeth slightly shorter than tube, pods black or dark brown with 6-8 black seeds. It grows in meadows and ruderal fields, from the steppe region up to the beech forest level.

In the Dictionary of flavonoids the following substances are mentioned:

Quercetin 3 - glycosides;

Quercetin 3 - vicianoside. Peltatoside;

3, 3´, 4´, 7 – Tetrahydroxy - 5, 5́ - dimethoxyflavylium (1+) prezent în flori;

3, 3´, 4´, 5, 7 - Pentahydroxy-flavone (Buckingham J., V. Ranjit N. Munasinghe, 2015).

***Viola biflora*L.** (viorele galbene). Perennial herbs, 2-20 cm tall; leaves ovate or kidney-shaped, base cordate; stipelles small, 1-3 yellow flowers, stigma flattened, bilobed and inversely-cuneate. It is common in mountain forests of beech and spruce, meadows, rocky areas, pebbles,juniper trees.

The leaves have laxative and emollient properties. The flowers have antiseptic, pectoral and diaphoretic properties. The roots are emetic.It can substitute *Viola odorata* used to treat skin rashes and irritations (Khare C.P., 2007).

***Viola reichenbachiana* Jord. Ex Boreau** (*V. sylvestris* Lam.). Perennial, stem 25 cm to fruition; leaves with wide-ovate leaf lamina, cordate, 2-4 cm long; stipelles linear-lanceolate; flowers purple violet, fruit-capsule oblong-ovate. All aerian parts are glabrous. It is common in hilly and muntainous forests.

The plant has pectoral properties. All parts can be applied to heal wounds and blows (Khare C.P., 2007).

CONCLUSIONS

Spontaneous cormophyte flora of Romania at the end of the 19th century included about 400 medicinal species, about 700 in the second half of the 20th century, about 800 at the beginning of the 21th century, most of which studied scientifically. We were surprised to discover that nearly 300 species from our country, most of which with very attractive flowers contain flavonoids. By adding information on other categories of known substances, we believe that out of more than 3600 species of cormophyte flora of Romania, almost ¼ have compounds of therapeutic interest. A major problem remains the fact that the same plant considered medicinal contains some substances which are hardly compatible with the human body.

ABSTRACT

Over the past decades, there has been a fashionable interest in phytotherapy. Hence, the chances of solving health problems have increased and a great diversity of species and substances have been made known. The current paper presents a comparative analysis of the medicinal flora of the 80s with the one of 2015, resulting in discovering no less than 150 species which are not present in „Farmacia naturii" written in 1976-1977.

The Medicinal Flora of India comprises more than 2000 species, of which 210 are spread in both Europe and Asia. These species also grow in Romania (over 25% according to the last updating), but 40 are not known yet to Romanians, who are familiar only with related species with less currency in the area such as: *Ceratophyllum demersum, Descurainia sophia, Pyrola rotundifolia, Pulicaria dysenterica, Rumex maritimum, Stellaria aquatica, Polygonatum verticillatum, Sisymbrium loeseli*(the seeds contain erucic acid), *Scutellaria galericulata, Viola reichenbackiana, Viola biflora*, etc.

The dictionary of flavonoids includes nearly 20,000 worldwide substances, whereas our paper recorded almost 300 species of flowering plants and 13 species of bryophytes present on our territory. By comparing the lists of Farmacia naturii 1977-1978, we found 135 new species, which have been only sporadically studied over the last 2 decades. We do not know the quantitative values although some species have a high number of substances, so we bring to attention some rare protected species, from which such substances should be collected only if the rare plants of therapeutic interest are cultivated. Unless we do this, we risk destroying in a couple of decades the diversity of the medicinal species.

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