STUDY OPPORTUNITIES FOR SPREADING AND USE OF CERTAIN SPECIES OF ARTEMISIA PRESENT IN MOLDOVA

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Abstract

Artemisia genus according to some authors includes about 400 species (taxons), and according to others 200 species spread all over the Globe. Many of them have different properties which is why they have numerous uses. In Romania Artemisia genus includes about 16 species, some of them very common. The present paper research aims to present the most common species of the North-East Region, their composition, their properties, their potential use, while stressing the implications from the point of view of sustainable development and of practicing organic farming at high scale. Finally, the authors propose usability diversification for some of the studied species.

Key words: Artemisia, spreading, uses, chemical composition, ecology

INTRODUCTION

This paper reflects the need to spread that a presentation of Artemisia genus in Moldova has not been updated for a long time. This can not be outdated as cooperative during the expansion of agriculture, with all its implications, it has brought many changes both in the area of distribution and density of species. Artemisia genus includes about 200 species, of which 16 species are in Moldavia. Some of them have been studied by researchers biochemically for use in pharmaceutical, food, etc. The paper aims to make an updated presentation of the genus Artemisia present in Moldavia and their uses in order to fund existing species knowledge for taking them into more detailed study. The paper said only species present in Moldavia, frequency and intensity of the subject of future studies.

MATERIAL AND METHODS

For carrying out the work were used materials from foreign literature references and Romanian literature, to which were added and our observations on the ground for some species. Thus the Romanian literature were synthesized ideas and information regarding the presence of certain species in certain areas and in certain counties according to the specifications made by different authors. For each species present in Moldova were made to clarify the chemical composition and regarding their use. Communication is derived from plant material support and Agronomy

University Iasi collection comprising 11 species and where they are studying, among others, eco-physiological adaptability of this species under conditions of the area.

RESULTS AND DISCUSSIONS

After consulting the literature, combined with data taken from ground Moldavia it was found that meet the following species of the genus Artemisia:

Artemisia absinthium L. (wormwood). The plant herbaceous perennial, strong smelling, lignified root in soil and 50- 150 cm tall stems, branched in the upper and woody. The leaves have hairs on the underside although what gives it a white-gray, and the flowers are yellow.

Distribution. Originally from Europe, is widespread in all districts of Moldova in the plains and hills, edges of roads and railways, meadows, orchards, rare rib by culture (Ciocârlan, 2000). In Iasi and Vaslui (Negreşti) meets and variety grandiflora with the same properties.

Harvesting. It makes the early flowering when there is the maximum percentage of active principle (June to September) and drying in the shade is required because the light fade easily leaves (T. Robu, Milică C. 2004). The roots are harvested in spring and autumn.

The chemical composition. Payment contains between 0.2-0.4% volatile oil (oxygenated monoterpenes, sequiterpenoide, monoterpene hydrocarbons) in fresh Herba predominantly in basal leaves and flowers. By extracting an end a dark green-blue due to chamazulene proazulenelor transformation. The plant contains compounds, flavonoids, tannins, resins, resins, mucilage, bitter substances, carotenoids, Sitosterol, organic acids, fatty acids, vitamins, mineral salts.

Uses. Wormwood has many such întrebuiţări (T. Robu 2004 Pārvu C 1991):herbal remedy in digestive, nervous, dermal, renal, cardiovascular; preparation of vermouth and other drinks appetizers, household soap;combating mites and fleas in homes, wound treatment, dyeing fabrics etc.

Abrotanum Artemisia L. (Mr. Wood). It is a highly branched semi-shrub, 50-70 cm tall. Leaves are finely hairy and yellow flowers. The plant has a pleasant characteristic odor, similar to that of camphor and lemon.

Distribution. It is grown in gardens, but may occur in wild flora. In Moldavia meets in Iasi, Bacau, Neamt and Suceava, in particular by ruderal edge of forests, meadows, rivers etc. (Sirbu C., A. Oprea 2011).

The chemical composition contains volatile oil, tannins, coumarins, flavones, bitter substances, purine, fitoncide, carboxylic acids, umbelliferone, scopoletin, a toxic alkaloid called abrotină crystallizing.

Uses. Due vermifuge properties, stomachic, diuretic, emmenagogue, collar, anthelmintic, bitter tonic, stimulant, anthelmintic etc. recommended in hepatobiliary disorders, stomach ailments, liver disease, bladder. The plant can be used as a decoction, poultices and soak.

Artemisia dracunculus L. (Tarragon). It is a perennial, 1-2 m high with lanceolate leaves, alternate with yellow flowers, white or purplish brown, grouped globular inflorescence (Coiciu E. and G. Racz, 1962).

Distribution. It is a plant cultivated for seasoning, but in Moldova there is no tradition in this sense only in some counties such as Suceava, Neamt, Vrancea and very little in the counties bordering the river Prut. The spontaneous flora may occur but rarely accidental. Using leaves and tips of the branches, early, before flowering they can be dried or preserved.

Chemical composition. Herba contains essential oil containing estragole, which represents 60-70% of the total. The leaves also contain terpene hydrocarbons, aldehyde Anis, vitamins B1, C and minerals.

Uses. In the food industry, in addition to the dishes or green salads perfumery etc.

Tarragon has many herbal properties that recommends anorexia (stimulating gastric secretion), rheumatism, kidney, indigestion, liver disease, hypercholesterolemia etc. The product is used as an infusion, decoction, or tincture medicinal vinegar depending on the situation.

Artemisia annua (wormwood, năfurică). Glabrous perennial, rich branched height up to 2 m. Blooms in June-September (Ciocârlan 2009). Its leaves are long and green. The flowers are yellow, fragrant.

Distribution. Moldova is prevalent in all counties, along roads, ruderal, ruins, walls, flooded places, around villages etc. Phenotypic plasticity with exceptional. We found presence and alkaline land, forming associations with halophile species, dominated.

The chemical composition. Volatile oil rich in camphene, β-camfen, isoartemisia ketone, 1-camphor, β-caryophyllene and β-pinene. The main ingredients include nonvolatile sesquiterpenoids, flavonoids and coumarin, along with proteins and steroids.

Uses. It has strong antimicrobial properties against various strains of bacteria and fungi, which is why it is used to combat malaria, skin infections and digestive, various forms of cancer. Volatile oil is used in perfume industry. (Ivănescu Bianca 2010).

Artemisia vulgaris (mugwort). 1- 1,2 m tall plant height with small leaves, gray-green that exudes a pleasant aroma when crushed. The flowers are small, yellow.

Distribution. Meets the cultivated, fallow, sowing plots near roads, in thickets and rivers edge. It is common in all regions, including all counties Moldova.

Bodies used. The leaves, harvested just before flowering plant or sumitates.

Chemical composition: It contains volatile oil, bitter substances, compounds TRITERPENE, inulin, tauremizina, Sitosterol, compounds police, sesquiterpenes lactones, resins, vitamins A, B1, B2 and C.

Uses. It is only occasionally used as a spice, but also bitter tonic herbal properties, sedatives, anti-epileptics. Empirically is used to combat mites and fleas. It is used to combat fatigue and perspiration legs through the application of leaves in the shoe. Used unwise sometimes fatal poisoning may occur.

Austrian Artemisia (Wormwood small). The plant herbaceous perennial with a woody root, richly branched. The stem is straight, 20-60 cm tall, with hairs cling. Blooms in July-September.

Distribution. In the steppe areas of the steppe grasslands, especially on grassy or rocky hills mesophilic vegetation. Very common in regions Galati, Bacau, Piatra Neamt, Iasi.

Chemical composition. The volatile oil contains: camphor, cineol, camphene, α-terpineol, α-pinene and -terpinen 4-ol. (John Wiley & Sons, Ltd. 1998).

Uses. Aromatic species less studied, but Iran has shown to reduce the effect caused by the lack of morphine withdrawal from drug addicts (Mohammad Charkhpour, 2014).

Artemisia lance. Species perennial, herbaceous, aromatic, with lignified and branched rhizome, very vigorous, 2.5 m high. The plant has not been mentioned previously in other regions of Europe.

Distribution. Originally from East Asia (Korea, China, Taiwan, eastern Russia, Japan and India) (Ohwi 1965 Peng Ling & 1998; Ling et al.2006). It was recently identified as a new species for Romania, in Iasi Socola station on land with soil skeletal anthropogenic origin, along with other ruderal species. From observations, just multiply vegetatively (Sirbu & Oprea 2011).

Chemical composition. It contains essential oil, biochemical components and cineol, thujone, camphor, borneol, terpenes, artemisia ketone, piperitone, sabinol, sesquiterpenoids, Canadienne, selinene.

Uses. Used as antifebril agent in Chinese medicine. Essential oils and other biochemical components of this species antimicrobial activity (Peng Ling & 1998).

Artemisia lavandulaefolia DC.

Description. Strongly scented perennial species, bitter taste, stolonifer rhizomes, stems ribbed, tomentoase with înnălţime 80-100 cm.

Distribution. Species originating in East Asia. It was referred to as occasional species under the name A. umbrosa of Russian authors, or as the

codonocephala others (Leonova 2002; Ling et al. 2006). It meets around villages, edges of roads and railways, ditches, irrigation canals, rubble, meadows, orchards, groves, rocky coasts or cultures. The species was identified in 2009 by Sirbu & Oprea in Iasi triage Socola Maidanul respectively.

Chemical composition. Essential oil of pathogen affecting (Kil et al. 2000 cited by Sirbu), cineol, thujone, camphor, borneol, terpenes, piperitone, sabinol, sesquiterpene, etc.

Uses. Some studies have shown that the extracts obtained from A. lavandulaefolia have the ability to inhibit the seed of other species (allelopathy effect) (Kil et al. 2000).

Artemisia Argy. Species perennial aromatic 80-100 cm tall stems and rhizomes ribbed stolonifer (Pellicer et al. 2007). Propagation by stolons or parting bushes.

Distribution. A native of Asia, has been identified, the station Socola-Iaşi (Sirbu & Oprea in 2011).

Chemical composition. Volatile constituents (ethanol, acetic acid, butanediol, cyclohexanol, thujone, camphelen, phellandrene, pinene, myrcene, dimenthyl, borneol, murolene, cardinals, isopropyl).

Uses. Does properties: antitumor antihemoroidale (Lao et al. 1984), analgesic, hemostatic and antipruristice (Woedenbag & Pras 2002), antiphlogistic and detoxifying (Ling et al. 2006).

Artemisia maritima (wild tar) Specifies salty soils and clay-loam. It has two subspecies: ssp saline (Willd.) Rchb. var. pendula and ssp monogyna (W.et K.).

Distribution. In Moldova saline -var ssp. pendula is meeting in Iasi, Vaslui, Galati, Suceava ssp monogyna in Iasi, Vaslui, Galati and lime. taurica found in Iasi region near the pond Chiriţei (Szabo in Rav. Fl.veg. Iaşi (1940).

Chemical composition. The plant contains greenhouse santonin anthelmintic (vermifuge), termisin, santonin, artemisin and volatile oil in the ratio of 1%.

Uses. Anthelmintic, antiseptic, antispasmodic, carminative, cholagogue, emmenagogue, febrifuge, appetizer, digestive tonic (anorexia), to treat fever and to combat intestinal worms. Artemisia scoparia lime. Villosa (Pelin brooms). Presents fusiform root, stem breaking, 100 cm high, glabrous, often reddish and extended bruniu branched from the base.

Distribution. In Iasi and Vaslui counties: Ungheni, V. Nicolini, Tail Rock (Iasi), but in general around the villages, railways edges of roads, ditches, pastures, orchards, rocky coasts or cultures.

Chemical composition. The volatile oil contains camphor 1,8-cineol, and beta-caryophyllene.

Uses. It is used for hepatitis, gallstones and cholesterol, bile flow stimulation, brain damage in infants (kernicterus), fever and chills, mouth, dizziness, nausea, anorexia, headache, constipation, pruritus, tumors, rheumatism, menstrual pain, malaria and muscle pain.

Artemisia Petrosa (Baumgarten) eriantha ssp. Plant with an arched stem erect, 8-20 cm high, tomentoasă, simple raceme inflorescence yellow.

Distribution. On rocky alpine area between 1700-2500 m. In Moldova we find in Galaţi and Ceahlau Mountains. (Fl.RPR 1964).

Chemical composition. The plant contains: thujone, methyl ethyl, methyl, hexane, sabinol, camphor, terpinolene, sabinene, cineole, terpineol.

Uses. Preparation liqueur, cognac, antispasmodic and anti-inflammatory as in phytotherapy.

Artemisia campestris (Pelin odorless) var. lednicensis is a plant with a woody root with a stalk lignified, 10-120cm tall. Plant odorless.

Distribution. On the sunny hills, meadows, pastures, beside roads, alluvial deposits, sand, the plains and mountains, steppe sometimes. In Moldova is found in the counties of Galati and Bacau.

Chemical composition. The essential oil contains: myrcene, pinene, ocimene, cimen, camphor, cymene.

Uses. It has anthelmintic properties, antiseptic, cholagogue, emmenagogue and tonic.

CONCLUSION

- Most species of Artemisia who meet in Moldova have many uses;
- In Iasi area (station Socola) are three invasive Asian species, nonspecific Romania;
- Artemisia species present in Iaşi lancaea is quoted so far in Europe.

REFERENCES

1. Ciocârlan Vasile, 2000, Illustrated Flora of Romania, Ed CERES, Bucureşti
2. Marga Gradil 1998, Technical and medicinal plant cultivation, Publisher MAST
3. Păun E., 1986, Treaty of medicinal and aromatic plants cultivation. Edit. RSR Academy
4. Robu T. Milica C., 2004, Medicinal plants native. Publisher European Institute Iaşi
5. Sîrbu Culiţă, Adrian Oprea 2011, Romanian flora adventitious plants, Edit. " Ion Ionescu de la Brad "Iaşi
6. Nyarady E. L. 1964, Flora RPR, Artemisia genus L, Vol. IX, Publishing House of Bucharest.
7. *** 2007-1000 herb. Publisher Aquila, Bratislava.