

BOOK OF PROCEEDINGS

6th INTERNACIONAL SCIENTIFIC
CONFERENCE

VILLAGE AND AGRICULTURE

29. SEPTEMBER AND 30. SEPTEMBER 2023.
BIJELJINA - REPUBLIC OF SRPSKA, BIH

ORGANIZING COMMITTEE:

President:

Boro Krstić, Ph.D

Members:

Grigorije Trifunović, Ph.D, Professor emeritus; Zoran Rajić, Ph.D; Sreten Jelić, Ph.D; Milivoje Čosić, Ph.D; Marija Bajagić, Ph.D; Vera Popović, Ph.D; Miroslav Nedeljković, Ph.D; Olga Gavrić, Ph.D; Vesna Gantner, Ph.D; Stefan Gordanić, MA; Marija Popović, MA; Maja Arsenović, MA; Danica Đokić, Bsc.

INTERNATIONAL SCIENTIFIC COMMITTEE:

President:

Miroslav Nedeljković, Ph.D

Members:

Grigorije Trifunović, Ph.D, Professor emeritus (BiH); Gorica Cvijanović, Ph.D, Rector (BiH); Boro Krstić, Ph.D, Dean (BiH); Drago Cvijanović, Ph.D (Serbia); Zoran Rajić, Ph.D (Serbia); Sreten Jelić, Ph.D (Serbia); Jonel Subić, Ph.D (Serbia); Milivoje Čosić, Ph.D (Serbia); Marija Cvijanović, Ph.D (BiH); Aleksandar Životić, Ph.D (BiH); Mersida Jandrić, Ph.D (BiH); Milorad Đokić, Ph.D (BiH); Jasmina Filipović, Ph.D (BiH); Ivan Urošević, Ph.D (BiH); Miljan Leković, Ph.D (Serbia); Mile Peševski, Ph.D (N. Macedonia); Željko Dolijanović, Ph.D (Serbia); Zorica Vasiljević, Ph.D (Serbia); Dragan Nikolić, Ph.D (Serbia); Beba Mutavdžić, Ph.D (Serbia); Tihomir Zoranović, Ph.D (Serbia); Nebojša Novković, Ph.D (Serbia); Dragana Tekić, Ph.D (Serbia); Goran Perković, Ph.D (BiH); Radivoj Prodanović, Ph.D (Serbia); Nikola Pivača, Ph.D (Serbia); Maja Anđelković, Ph.D (Serbia); Milan Vemić, Ph.D (Serbia); Milan Radosavljević, Ph.D (Serbia); Milan Janković, Ph.D (Serbia); Gordana Đurić, Ph.D (BiH); Miljan Cvetković, Ph.D (BiH); Nermin Palić, Ph.D (BiH); Jorđe Jokimovski, Ph.D (N. Macedonia); Jean Andrei Vasille, Ph.D (Romania); Dona Pikard, Ph.D (Bulgaria); Erhe Kovach, Ph.D

REMAINS OF DECORATIVE PLANTS AND THE FUNCTION OF PROTECTION OF THE ENVIRONMENT AND HEALTH

*Kristina Kajiš¹, Jela Ikanović², Vera Popović³, Ivana Iličković⁴,
Nikola Rakaščan¹, Divna Simić⁵, Zdravka Petković⁶*

¹*Independent University of Banja Luka, Faculty of Ecology, B&H*

²*University of Belgrade, Faculty of Agriculture, Zemun, Serbia,*

² *Institute of Field and Vegetable Crops, Maksima Gorkog 30, Novi Sad, Serbia*

⁴ *Evropa Lek Pharma d.o.o. Podgorica, Montenegro*

⁵*Institute of Application of Science in Agriculture, Belgrade, Serbia*

⁶*Academy of Business Studies, Belgrade, Republic of Serbia*

Corresponding authors: jela@agrif.bg.ac.rs

Abstract

The herbal drugs prepared with the traditional methods through slow grinding and mixing processes conserves all the natural substances without losing any essential component, maintains the activity and purity of the drug, and have potential medicinal uses. Use of plants as herbal cosmetics is known since ancient times. In this study, the remains of herbaceous and woody biomass decorative plants were analyzed because a large number of herbaceous, both annual and perennial species of decorative plants contain substances that are important raw materials for cosmetic and pharmaceutical preparations. Smaller amounts of herbaceous biomass are used for compost production. The wood biomass of decorative plants can be used as solid fuel or cut, and the obtained boards and laths are used for making various objects. Fruits (seeds), flowers, leaves, stems and roots of decorative plants were also analyzed. Certain plant organs such as boxwood, linden and birch leaves are used for medicinal purposes. These plants can be grown on decorative surfaces in gardens for their own needs and prepared to prepare teas and other medicinal drinks that are used as means to improve the health of people, but also domestic animals and pets. As decorative plants are valued, among others, the Oman, which blooms for a long time forming beautiful yellow inflorescences that are also used as cut flowers.

Keywords: *Decorative plants, herbal drugs, biomass.*

Introduction

Decorative plants can be annual and perennial herbaceous plants, as well as perennial shrubby and woody plants, which with their flowers, leaves or habit beautify public areas such as parks, promenades and sports fields, then yards, interiors of residential and work buildings (potted species). They can also be grown on arable land, and these are species that are grown for cut flowers and for the purpose of producing seeds or planting material. Some of the decorative plants are sometimes used in the pharmaceutical, cosmetic and food industries.

However, the most important role of these plants is visual effects. From an economic point of view, these plants in urban areas reduce the cost of energy needed for heating or cooling, increase the value of residential buildings, while public areas (parks and recreation centers) become more interesting for tourists. From an ecological point of view, with their above-ground biomass, they influence climatic extremes by mitigating the consequences of all forms of erosion, then consume carbon dioxide releasing oxygen, reduce city noise, have a positive effect on people's health and well-being, and the like. In order for these plants to exhibit the mentioned positive effects, it is necessary to apply numerous care measures throughout the year. One of the important care measures is regular pruning in order to form the desired shape of the habitus of woody plants. In the case of annual herbaceous species, the care measure is the removal of over flowered, damaged and dried above-ground organs of trees and leaves, then mowing of decorative grass areas and the like. After these care measures, large amounts of fresh biomass remain, which can be used in several ways in order to obtain useful products from organic waste for further use. They are grown as decorative on agricultural and non-agricultural (parks, areas around residential buildings, factories, around roads, etc.) surfaces and medicinal, which can be cultivated and wild. Most of these species can be used as ornamental or medicinal plants, and some for food purposes (Glamočlija et al., 2015; Janković et al., 2019). Some decorative plants are also medicinal, in their vegetative or generative organs they synthesize medicinal substances that have a beneficial effect on the health of people and domestic animals. In treatment, they are used as auxiliary medicinals of folk (alternative) medicine, and according to data from the World Health Organization (WHO), about 80% of the world's population uses medicinal products based on medicinal plants. The maintenance of large decorative surfaces is performed by specialized services equipped with the necessary machinery and places for disposal and biodegradation of collected residues. Further processing of plant residues depends on the type (herbaceous or woody) and the amount of biomass in order to protect the environment. In this study, the remains of decorative plants of herbaceous and woody biomass were analyzed because a large number of decorative plants contain substances that are important raw materials for cosmetic and pharmaceutical preparations (Glamočlija et al., 2015; Burić et al., 2023; Stevanović et al., 2023).

Material and methods

In this study, the remains of decorative herbaceous and woody plants were analyzed because a large number of herbaceous annual and perennial species contain substances that are important raw materials for cosmetic and pharmaceutical preparations. Smaller amounts of herbaceous biomass are used for compost production. The biomass of decorative plants can be used as solid fuel or can be cut, and the obtained boards and laths are used to make various

objects, for example park benches, various decorative baskets, household appliances and the like. Fruits (seeds), flowers, leaves, stems and roots of decorative plants, which are used in pharmaceutical and other industrial branches, were also analyzed. Certain plant organs such as boxwood, linden and birch leaves are used for medicinal purposes.

Results and Discussion

Further use of plant residues

Herbaceous biomass is used to produce compost which serves as a substrate for the preparation of humus soil for filling pots or is sold to flower growers. The biomass of decorative plants can be used as a solid fuel or can be cut, and obtaining planks and laths that are used to make various items, for example park benches, various decorative baskets, household appliances and the like. Chopped biomass is suitable for mixing with herbaceous biomass (grass leaf, clippings, leaves, etc.) to make compost.

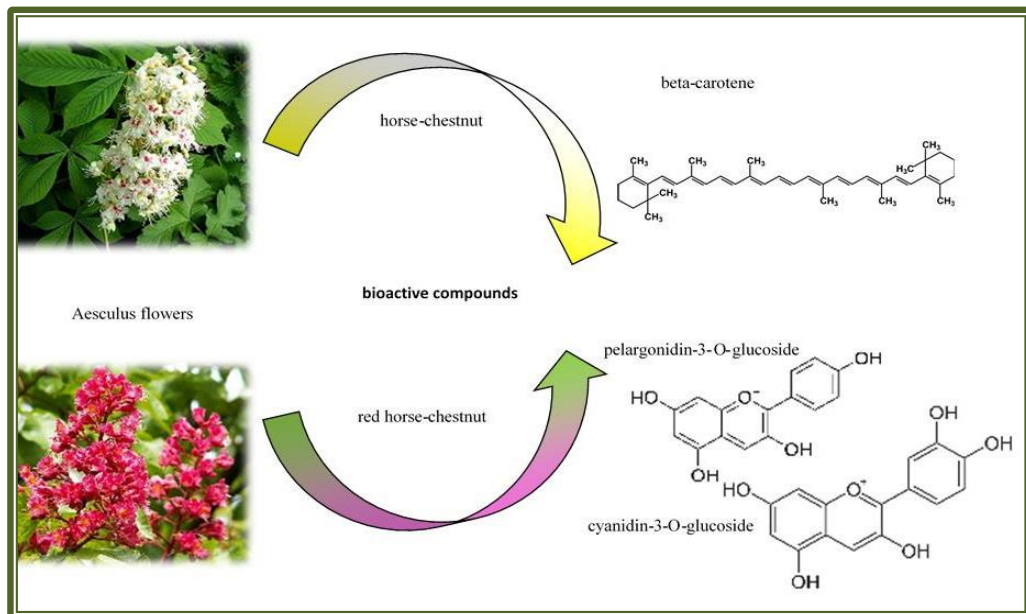
If the quantities of fresh biomass are large enough that they cannot be used in the described way, they can be used as raw material for obtaining biogas, and the residues after the process should be taken to the land areas that are in the process of remediation.

Use of fruits (seeds), flowers, leaves, stems and roots of decorative plants

A greater number of woody species of ornamental plants form fruits during the year that can be used in the cosmetic and pharmaceutical industry if they are healthy and uncontaminated by aerosols. Acorns, leaves and oak twigs contain significant amounts of chemical substances that are used in pharmaceutical and other industries (Popović et al., 2018, 2021).

Aesculus hippocastanum (L.) - Park chestnut or wild chestnut is a deciduous tree native to a small area on the Pindus and Balkan mountains, where it grows in mixed forests, but as a park species it can be found throughout Europe and North America. It develops a tall tree up to 30 m with a wide dense crown of 15 to 20 m. It blooms in spring (in our conditions in May) in upright panicles 10–30 cm high with about 20–50 flowers in each inflorescence. Usually only 1–5 fruits develop on each panicle. The fruit contains one (rarely two) large brown and shiny seeds encased in a green spiny husk that bursts when the seeds ripen, in September. Horse chestnut fruits are inedible (mildly poisonous), but widely used in folk medicine. Park chestnut in bark, leaves, flowers and seeds has 40-60% starch, 5-8% saponin, 5-8% oil, proteins, glycosides, tannins, resin, vitamins (B, C, K and P), beta-carotene (Picture 1) then alkaloids escin, quercetin and other compounds used in the pharmaceutical industry. Medicines produced on the basis

of chestnut alkaloids are used for the treatment of vascular diseases and in veterinary medicine (Pittenger et al., 2002).



Picture 1. Bioactive components in *Aesculus* flowers (Bielarska et al., 2022)

Certain plant organs and other decorative plants are used for medicinal purposes, for example: boxwood leaves against gout, rheumatism, fever; viburnum leaves and fruits for stomach ailments; from linden liquina fibers, timber, flowers for teas and it is an important honey plant; from birch wood for carving, sap as a drink, nutritious leaf buds, flour from the inner bark, teas and baths from dry leaves, and so on.

Certain plant organs of herbaceous decorative species can also serve as an important raw material in the pharmaceutical and cosmetic industry. Sharma and Kumar (2013) emphasize that a large number of herbaceous, annual and perennial species of decorative plants contain substances that are important raw materials for cosmetic and pharmaceutical preparations. The plants used in cosmetics donot merely enhance beauty but have definite medicinal value also. Sandal (*Santalum album* Linn.), turmeric (*Curcuma domestica* Valetton.) and other plants are used in the formation of a paste for improving the complexion of a bride. Women use sandal (*Santalum album* Linn.), rose (*Rosa damascene* Mill.) to perfume their body. *Acacia concinna* DC. (Vern.Shikakai); Pods are blended into shampoo and hair cleanser with *Sapindus mukorossi* Gaertn Vern. Ritha to promote hair growth and to stop hairsplitting, falling and dandruff.

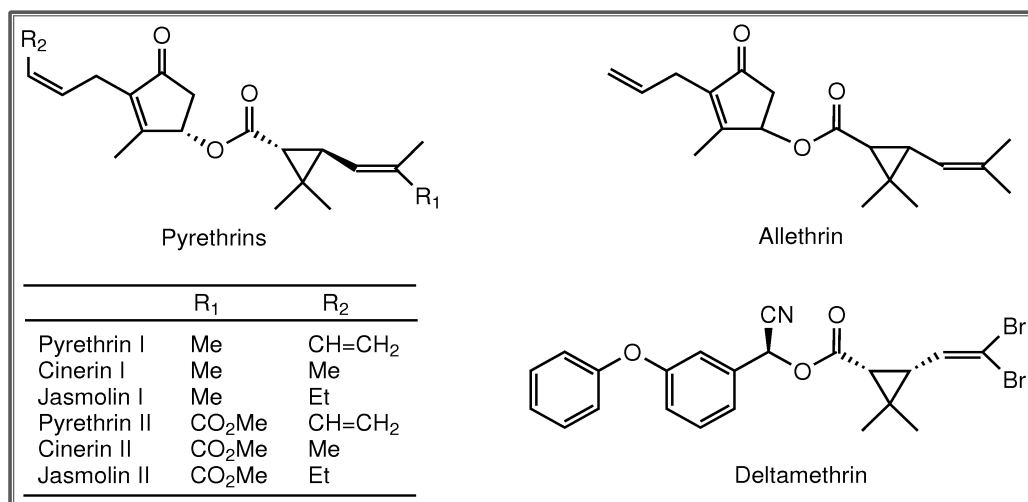
These plants can be grown on decorative surfaces for preparing teas and other medicinal drinks that are used as means to improve the health of people, but also domestic animals and pets. As decorative plants are valued, among others, the

oman, which blooms for a long time forming beautiful yellow inflorescences that are also used as cut flowers.

The roots of this plant are very medicinal and were used in ancient times to make medicines against cough and bronchitis. The roots of some other plants have a similar medicinal value, and in recent times, they are also grown more and more on flower beds. Such is the type of echinacea whose roots are used in folk and official medicine.

From the rose family, a perennial herbaceous species of *Filipendula ulmaria* L. / *Spirea ulmaria* L.) (suručica in Serbian) is grown as a decorative plant. The plant is valued as edible and medicinal because it contains salicylic compounds. It is used in folk medicine for the preparation of analgesic drugs.

***Pyrethrum cinerariaefolium* Vis.** - (Buhač in Serbian) one of the most powerful natural insecticides. *Pyrethrum cinerariaefolium* thrives well on sandy and stony surfaces and can be grown for decorative purposes on such terrains. It is a perennial bushy plant that blooms all year round, forming yellow head-shaped inflorescences. The plant has been used for medicinal purposes since ancient times.



Picture 2. Chemical structures of the neurotoxic insecticides Pyrethrins (Kojima et al., 2022)

Today's pharmacopoeia treats the feverfew herb as a remedy against fever and colds, but one should be careful because the plant is poisonous, due to pyrethrins, Picture 2. In the past decades, in addition to the decorative value it has in specific parts of the gardens, in some countries, the wild rose is grown on larger areas and serves as a raw material for the production of bioinsecticides (Casida, 1973; 1980; Amason et al., 1989; Cox, 2002; Grdiša & Gršić, 2013).

Pyrethrins are completely safe, there are some exceptions. Pyrethrins do not accumulate in muscle, fat or other human tissues. The toxic effect of pyrethrins

is greater in children and the elderly, who are more sensitive. Symptoms that may occur in some people who frequently use pyrethrin indoors are hypersensitivity pneumonitis, inflammation of the lung tissues, cough and shortness of breath. In contact with the skin, pyrethrin can cause moderate skin irritation, and mild irritation in contact with the eye and to nausea, vomiting, diarrhea and abdominal pain (Macan et al., 2006). The most common symptoms that appear on the skin are various forms of dermatitis, swelling of the face, itching, scaling, cracking, burning and sensitivity of the skin, weight loss, various edemas and erythemas (www.atsdr.cdc.gov). Most symptoms disappear very quickly (Casida, 1973). Treatment of closed rooms can cause pyrethrin to linger in certain parts of the room, where it can remain in its original form for up to 75 days (Cox, 2002). Macan et al. (2006) state that glycoproteins, glycopeptides and sesquiterpene lactones (the most important pyrethrosine) that cause allergic reactions were identified in the unrefined extract of the flea beetle. McCord et al. (1921) mention the appearance of a skin disease called erythema venenstium that appeared on the skin of the face and forearms in the form of lesions. The pyrethrin used today is mostly purified from impurities, does not contain impurities, and does not cause severe allergies that occurred in the past (Casida, 1980, Grdiša and Gršić, 2013). If an allergy does occur, there is a high probability that it will pass quickly. The most common cause of asthma as a result of using pyrethrins are the impurities found in the mixture.

Pyrethrins are used to control a wide range of insects, some of which are: plant bugs, cicadas, cabbage white caterpillars, most aphids, pips, bloody apple aphids, small and chestnut mealybugs, red fruit spider, bird mites, cherry wasp larvae, crickets, thrips, moths, ticks, fleas, mosquitoes, cockroaches, flies, wasps, hornets, wasps, some types of lepidoptera, etc. (Arnason et al., 1989, Casida, 1973, Casida, 1980, Kovačić et al., 2008, Pejić, 2019, www.infonet-biovision.org).

***Galium verum* L.** (Ivanjsko cveće in Serbian), midsummer flowers are recognizable by their golden-yellow flowers whose smell is reminiscent of honey, this medicinal plant is widely distributed in our area. It grows in meadows and roadsides, mostly in dry and sunny habitats, and blooms throughout the summer.

Due to beneficial effects of *Galium* species noticed over time, there are now galenic remedies and dietary supplements considered to help in several health disorders, mainly involving immune system, anti-inflammatory processes, detoxication and oxidative stress, Pictures 3 and 4.

Midsummer flowers are a favorite decorative plant that has been cultivated since ancient times. In addition to the basic role of beautifying the space in decorative gardens and in the backyards, this decorative plant is used in folk medicine Shahmoradi et. al. (2016). Inflorescences containing medicinal substances,

essential oils, rutin, cinnaroside, flavonoids and salts of organic acids serve as drugs.

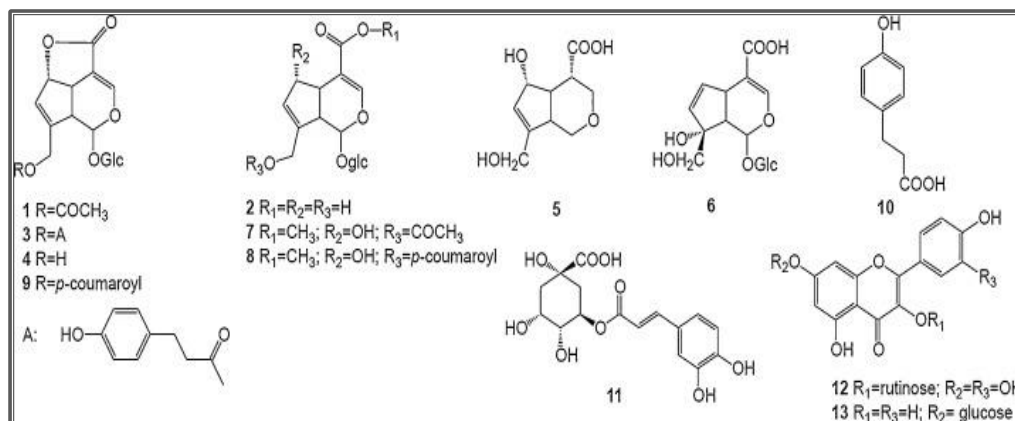
The reported biological activities of *Gallium verum* are presented in Table 1.

Table 1. Biological activities of *Gallium verum*

Use		Pathology	Biological activity
Internal use		Urinary stone complaints, Scurvy, Dropsy, Hysterics, Epilepsy, Gout, Nose bleeding, Stomach problems, Diarrhea, Scorbutic, scrofulous and dropsically complaints, Antistress—immunomodulatory, Pyelitis, Cystitis, Liver disorders, Cardiovascular diseases, Thyroidian, ovarian, adrenal and gluco corticoid hormones synthesis stimulation (in vitro).	Antioxidant (investigated and proved by DPPH, ABTS in vitro assays), Cytotoxic (investigated and proven in high doses in neck cancer cell lines HLaC78 and FADU: cell motility and invasion strong inhibition, DNA protection against benzo[a]pyrene's toxicity in cigarettes), Protective: hepatic-protector, thymus protector, Antimicrobial (antibacterial and antifungal activity) (water, alcohol, chloroform extract): Staphylococcus aureus, Escherichia coli, Pseudomonasaeruginosa, Bacillus subtilis, Proteus vulgaris, Candida albicans, Endocrine system: morphological changes of hypothalamus-hypophysis-adrenal axis resulting in enhanced of neurosecretory activity
External use		Indolent tumors, Strumous swelling and tumors of breast, Psoriasis, Delayed wound healing, Cancerous ulcer, Breast cancer, Bacterial and fungal infections, Parasitoses, Gingival inflammation, Cosmetic purposes	Antihemolytic activity, Cholinesterase activation, Non-specific defense mechanism Detoxicant, Antibacterial, antifungal against Gram-positive microorganisms (S. aureus, L. monocytogenes) Anticandidiasis effect (on Candida albicans, C. tropicalis, C. glabrata)

Source: Turcov et al., 2022.

Preparations of St. John's wort are used to treat kidney diseases, inflammation of the liver, as well as psychological disorders (anxiety, hysteria, epilepsy and others). In the production of dairy products, it is added to curdle milk and color cheese. Midsummer flowers are an exotic, entomophilous species and belong to the group of honey plants.



Picture 3. Chemical structures of the *Galium sp.*

Achillea millefolium L. is characterized by broad ground leaves arranged in the form of a rosette and an upright stem up to 80 cm long, on which small pinnate leaves are arranged on short stalks, at the top of which there is a rich inflorescence made of small white or light pink flowers. St. John's wort belongs to the *Asteraceae* plant family, and has many therapeutic uses.

Achillea millefolium L. (Yarrow), belongs to *Asteraceae* family and it is represented by about 85 species mostly found in Europe and Asia and a handful in North America. In the folk medicine yarrow is used for treatment of fever, asthma, bronchitis, cough, skin inflammation, jaundice, diabetes, hepatobiliary diseases, healing of wounds, menstrual regulation, flatulence, dyspepsia, hemorrhoids, dysmenorrhoea and gastritis and also consumed for its antitumour, antimicrobial, anti-inflammatory and antioxidant properties. Antioxidant properties of *A. millefolium* have previously been reported in hydroalcoholic, methanolic and aqueous extracts, as also in the essential oils (Candan et al., 2010; Trumbeckaite et al., 2011; Vitalini et al., 2011). Hyperoside was the flavonoid compound present at high concentrations among the investigated standards (604.95 and 453.25 $\mu\text{g/g dw}$, respectively), Table 2.

Table 2. Flavonoid aglycones and glycosides content in extract from *Achillea millefolium*, $\mu\text{g/g dw}$

Flavonoids aglycines and glycosides / extract	Microwave extr.	Decoction extr.
Myrcetin	52.00	45.44
Luteolin	95.21	126.97
Kaempferol	15.91	126.97
Rutin	54.03	94.80
Hyperoside	453.25	604.95

Source: Georgieva et al., 2015



Picture 4. Park chestnut, a, flea, b, midsummer flowers, c., Yarrow, d.

Yarrow is an often cultivated, but also widespread self-flowering flower species with a perennial life cycle. In addition to its decorative value, this plant has always played an important role in folk medicine. The above-ground organs of plants (flowers and trees with leaves), which have a strong antibacterial effect, are used as drugs. Preparations made from the drug yarrow are used in official medicine for the treatment of diseases of the stomach and intestines, as well as against hepatitis, high blood pressure and as a means of preventing thrombosis. In folk (alternative) medicine, the leaves are used to stop bleeding, then in the treatment of injuries, purulent wounds and in soothing skin inflammations. Some nations use it in cooking. Flowers and leaves are used for the preparation of dishes to which they give a specific aroma, and in the production of alcoholic beverages for the preparation of liqueur. It is also highly valued as a honey plant.

Conclusion

Herbaceous biomass is used to produce compost. The wood biomass of decorative plants can be used as solid fuel or cut, and the obtained boards and laths are used for making various objects. A greater number of woody species of ornamental plants form fruits during the year that can be used in the cosmetic and pharmaceutical industry if they are healthy and uncontaminated by aerosols. In addition to the basic role of decorative plants to beautify the space in decorative gardens and on the homesteads, decorative plants are used in folk medicine because in their vegetative or generative organs they synthesize medicinal substances that have a beneficial effect on the health of people and domestic animals. In treatment, they are used as auxiliary medicinal of folk (alternative) medicine, and according to data from the World Health Organization (WHO), about 80% of the world's population uses medicinal products based on medicinal plants.

Acknowledgments

The study has results of the Ministry of Education, Science and Technological Development of the Republic of Serbia, contract number: 451-03-47/2023-01/200032; 200116; and APV Project 2022-2023: Analysis of nitrogen

application on maize productivity of different FAO maturity group using classical and modern technology.

Reference

1. Arnason, J. T., Philogene, B. J. R., Morand, P. („ur“) (1989): Insecticides of plant origin. American Chemical Society, Washington DC, 213
2. Burić M., Popović V., Ljubičić N., Filipović V., Stevanović P., Ugrenović V., Rajičić V. (2023). Productivity of black oats - *Avena strigosa* on chernozem, importance in nutrition and health. Produktivnost crnog ovsa - *Avena strigosa* Schreb. na černozeu i značaj u ishrani i medicini. Selection and seed production, Selekcija i semenarstvo, 29, 1, 21-32
3. Candan, F., Unlu, M., Tepe, B., Daferera, D., Polissiou, M., Sökmenc, A. and Akpulat, H.A. (2010). Antioxidant and antimicrobial activity of the essential oil and methanol extracts of *Achillea millefolium* subsp. *millefolium* Afan. (*Asteraceae*). Journal of Ethnopharmacology 87: 215–220.
4. Casida, J. (1973): Pyrethrum: the natural insecticide. Academic press, New York i London, 329.
5. Casida, J. (1980): Pyrethrum flowers and pyrethroid insecticides. Environmental health perspectives, Vol. 34, pp: 189-202.
6. Cox, C. (2002): Insecticide factsheet: Pyrethrins/Pyrethrum. Journal of pesticide reform, Vol. 22, No. 1: 14-20
7. Georgieva, L., Gadjalova, A., Mihaylova, D., Pavlov, A.(2015). *Achillea millefolium* L.– phytochemical profile and in vitro antioxidant activity. International Food Research Journal 22(4): 1347-1352.
8. Grdiša, M., Gršić, K. (2013): Botanical insecticides in plant protection. Agriculturae conspectus scientificus, 78 No. 2:85-93.
9. Glamočlija, Đ. (2012): Posebno ratarstvo 1. Poljoprivredni fakultet, Beograd.
10. Glamočlija, Đ., S. Janković, V. Popović, V. Filipović, V. Ugrenović i J. Kuzevski, (2015): Alternativne ratarske biljke u konvencionalnom i organskom sistemu gajenja. Monografija, Izdavač, IPN, Beograd.
11. Janković, S., Đ. Glamočlija, J. Ikanović, Rakić S. (2019): Sekundarni ratarski proizvodi. Monografija, Institut za primenu nauke u poljoprivredi, Beograd. ISBN 978-86-81689-41-7pp 385.
12. Kovačić, S., Nikolić, T., Ruščić, M., Milović, M., Stamenković, V., Mihelj, D., Jasprica, N., Bogdanović, S., Topić, J. (2008): Flora jadranske obale i otoka: 250 najčešćih vrsta. Školska knjiga, Zagreb. 559.
13. Macan J., Varnai V.M. (2006). Health effects of pyrethrins and pyrethroids. Arh. Hig. Rada. Toksikol. 57:237–243.

14. McCord, C. P. Kilker, C. H., Minster, D. K. (1921): Pyrethrum dermatitis: a record of the occurrence of occupational dermatoses among workers in the pyrethrum industry. *The Journal of the American Medical Association*, 77(6): 448-449.
15. Pejić, P. (2019). Učinkovitost piretrina, eteričnog ulja čajevca i limunskog eukaliptusa u suzbijanju ličinki *Tribolium castaneum*. Diplomski rad. Sveučilište u Zagrebu, Agronomski fakultet, Zagreb,
16. Pittenger, D. R. (2002): California Master Gardener Handbook. *UCANR Publications*. pp. 567.
17. Popović, V., L. Maksimović, M. Vasić, A. Marjanović Jeromela, V. Mihailović, J. Ikanović, D. Stojanović and V. Filipović (2018): Yield and oil content and total phenol content in seeds of poppy (*Papaver somniferum* L.) in organic cropping system. 59. Production and Processing of oilseed. Proceedings of the Oil Industry Conference. Herceg Novi, pp. 85-94.
18. Popović M.V., Šarčević-Todosijević Lj., Petrović B., Ignjatov M., Popović B.D., Vukomanović P., Milošević D., Filipović V. (2021): Economic Justification Application of Medicinal Plants in Cosmetic and Pharmacy for the Drugs Discovery. Chapter 3. Ed. Emerald M. Book Title: An Introduction to Medicinal Herbs. NOVA Science publishers, USA, DOI: <https://doi.org/10.52305/TKAL3430>, pp. 63-106. p. 1-365
19. Shahmoradi, A., M. Alikhani, A. Riasi, G. Ghorbani and M. Ghaffari (2016): Effects of partial replacement of barley grain with beet pulp on performance, ruminal fermentation and plasma concentration of metabolites in transition dairy cows. *J. Anim. Physiol. Anim. Nutr.*, 100 (1), pp. 178-188.
20. Sharma, M., Kumar A. (2013): Ethnobotanical uses of medicinal plants. *Life Sci.*, 3, 52-57,
21. Stevanović A., Bošković J., Zečević V., Pešić V., Čosić M., Šarčević Todosijević Lj., Burić M., Popović V. (2023). Variability and heritability of technological characteristics of Amaranthus leaves and seeds. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca* 51, 2, 13128,
22. Turcov, D., Barna, A.S., Trifan, A., Blaga, A.C., Tanasă, A.M., Suteu, D. (2022): Antioxidants from *Galium verum* as ingredients for the design of new dermatocosmetic products. *Plants* 11, 2454.
23. Trumbeckaite, S., Benetis, R., Bumblauskiene, L., Burdulis, D., Janulis, V., Toleikis, A., Viškelis, P. and Jakštas, V. (2011). *Achillea millefolium* L. s.l. herb extract: Antioxidant activity and effect on the rat heart mitochondrial functions. *Food Chemistry* 127: 1540– 1548.
24. Vitalini, S., Beretta, G., Iriti, M., Orsenigo, S., Basilico, N., Dall'Acqua, S., Iorizzi, M., Fico, G. (2011). Phenolic compounds from *Achillea millefolium* L. and their bioactivity. *Acta Biochimica Polonica*. 58:203-12.
25. www.atsdr.cdc.gov

26. <https://www.atsdr.cdc.gov> (access 5.06.2023)

27. www.infonet-biovision.org

CIP – Каталогizacija u publikaciji
Народна и универзитетска библиотека
Републике Српске, Бања Лука

63(082)

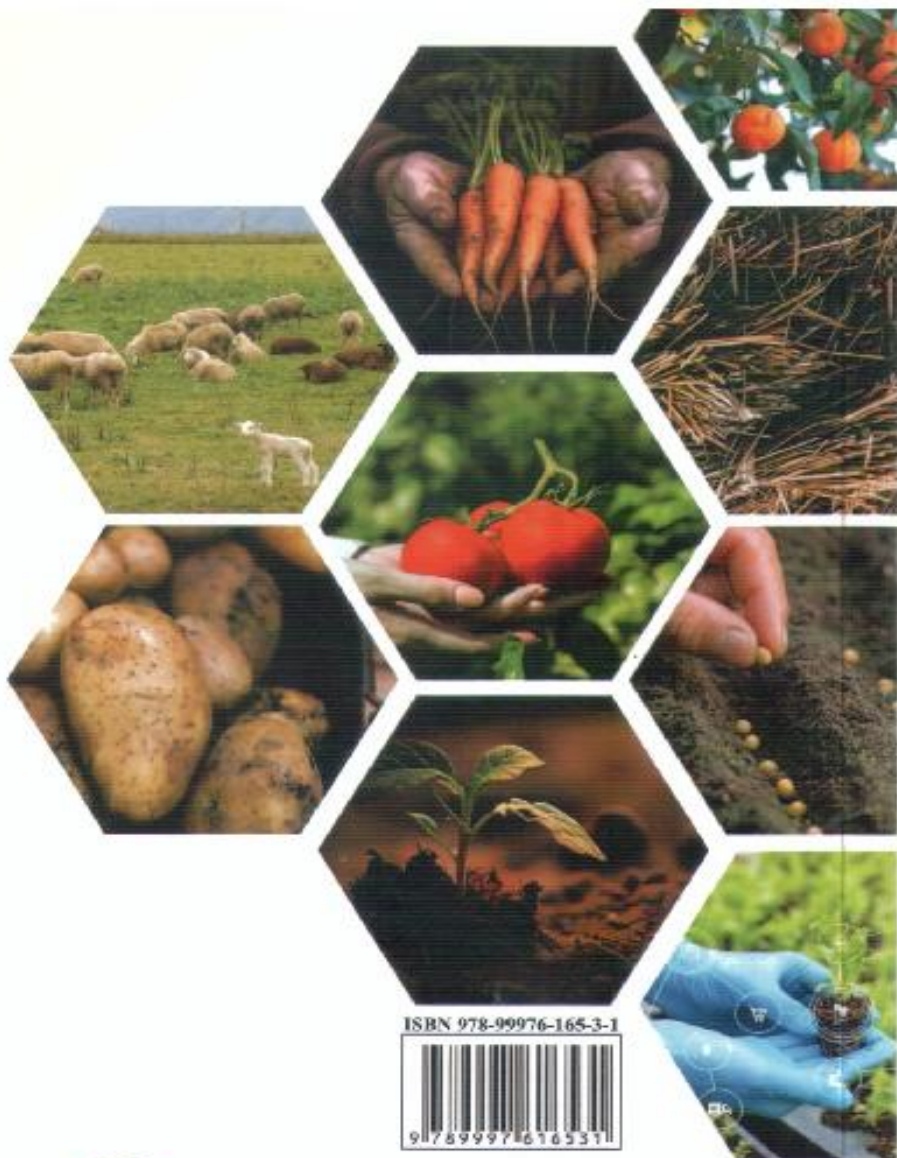
INTERNATIONAL Scientific Conference "Village and Agriculture"
(6 ; 2023 ; Bijeljina)

Village and Agriculture : [Book of Proceedings] / 6th
International Scientific Conference, 29/09-30/09/2023, Bijeljina,
B&H ; [editors Boro Krstić, Milivoje Čosić, Jean Vasile Andrei]. -
Bijeljina : Bijeljina University, 2023 ([S. l. : s. n.]). - 380 стр. ;
илустр. ; 25 cm

Тираж 100. - Библиографија уз сваки рад.

ISBN 978-99976-165-3-1

COBISS.RS-ID 139088429



ISBN 978-99976-165-3-1



9 789997 616531



Univerzitet „Bijeljina“
Bijeljina University