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за изпълнение на минимални национални изисквания за
заемане на академичната длъжност „ДОЦЕНТ“ по област на
висше образование 6. Аграрни науки и ветеринарна медицина,
Професионално направление 6.1. Растениевъдство

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Показател В4

1. К. Коев, **S. Georgiev**, A. Tashev, A. Karova. 2014. Eco-biological characteristics of the medicinal plants in the floodplain forests of the maintained reserve “Dolna Topchiya” (the river Tundzha hilly valley). J. BioSci. Biotech. SE/Online 2014. 181 - 187 p. ISSN: 1314-6246. Web of Science (2012-) (CABI).

Summary

In the present study we made eco-biological characteristics of the medicinal plants we found in the maintained reserve “Dolna Topchiya”; the reserve is located in the middle course of the Tundzha River near the town of Elhovo (the floristic region of Tundzha hilly valley). In the period of time 2010-2012, inventory of medicinal plants in the reserve was conducted. They were distributed in biological groups, life forms, floral elements and flowering time. Medicinal plants are also grouped according to their relation to the main environmental factors – water, light and heat. Negative factors on the flora and habitats in the reserve were indicated.

2. A. Tashev, К. Коев, **S. Georgiev**, A. Karova. 2014. Eco-biological characteristics of the flora in the floodplain forests of the protected area “Nahodishte na blatno kokiche” the Village of Vinica, Parvomay (Bulgaria). J. BioSci. Biotech. SE/Online 2014. 197 - 203 p. ISSN: 1314-6246. Web of Science (2012-) (CABI).

Summary

The present study examines the flora in the protected area “Nahodishte na blatno kokiche”, Vinitza village, region of Plovdiv, situated in the middle course of the Maritsa River. The received data is based on three-year research in the floodplain forests in the protected area and analyses of the literary sources. Eco-biological characteristic of the higher plants is made, and the species are distributed by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor. Conclusions for the presence by percentage of medicinal flora in the protected area are made, as well as their anthropogenic influence and the perspectives regarding security and business use.

3. **S. Georgiev**, К. Коев, A. Tashev, A. Karova. 2014. Eco-biological characteristics of the flora in the floodplain forests of the reserve “Gorna Topchiya” (The river Tundzha hilly valley). J. BioSci. Biotech. SE/Online 2014. 189-195 p. ISSN: 1314-6246. Web of Science (2012-) (CABI).

Summary

The present study examines the flora in the reserve “Gorna Topchiya”. The reserve is located in the middle course of the Tundzha River near the town of Elhovo (the floristic region of Tundzha hilly valley). The received data is based on three-year research in the floodplain forests in the reserve and analyses of the literary sources. Eco-biological characteristic of the higher plants is made, and the species are distributed

by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor. Conclusions for the presence by percentage of medicinal flora in the protected area are made, as well as their anthropogenic influence and the perspectives regarding security and business use.

4. E. Yankova-Tsvetkova, I. Semerdjieva, K. Koev, B. Sidjimova, **S. Georgiev**. 2018. Peculiarities of the reproductive biology of three species of genus *Colchicum* from Bulgaria. *CARYOLOGIA*, Vol. 71 (4), 307-314 p., 2018, ISSN 0008-7114, 2165-5391. Web of Science; Scopus (Q2).

Summary

This study establishes the peculiarities of the major parameters of reproductive biology (features of the structures and processes in the male and female generative sphere, pollen and seed viability) of three species of genus *Colchicum* from the Bulgarian flora – *Colchicum autumnale*, *Colchicum diampolis* and *Colchicum bivonae*. The anthers are tetrasporangiate. Their wall develops according to monocotyledonous type and consists of epidermis, fibrous endothecium, two middle layers and glandular tapetum. The sporogenous tissue in the anther locule is one-layered. The microspore tetrads formed after regular meiosis in microspore mother cells and successive microsporogenesis are predominantly tetrahedral. The mature pollen grains are two-celled. The ovule is anatropous, medianucellate and bitegmic. In it a unicellular archesporium forms without cutting off parietal cells. The embryo sac develops after Polygonum (monosporic)-type. The embryogenesis follows the Asterad-type. The formation of an additional embryo derived from one of the synergids was found in *C. diampolis*. The endospermogenesis passes a free nuclear stage before its transformation in cellular one. The established high pollen and seed viability provides the investigated *Colchicum* species with high reproductive capacity.

5. Y. Dimitrov, N. Palagacheva, P.Zorovski, **S. Georgiev**, R. Mladenova, Zh. Radev. 2020. Species composition of major pollinators in agricultural agrocenoses. *Bulgarian Journal of Agricultural Science*, 26 (No 1), 198–201 p., ISSN 1310-0351. Web of Science; Scopus (Q3).

Summary

In the recent years, the number of insect pollinators has declined significantly. This, on the one hand, is explained by urbanization, which reduces the blooming resources available to pollinators and on the other, the widespread use of pesticides for pests control in industrial farming.

Considering this, the preservation and restoration of plant strips in and around arable land is essential to provide a wide variety of flowering species, which serve as food resources, nesting and hibernate sites for pollinators.

With the aim of associating the earlier pollinators in the crop, it was betting field experience with different grass mixtures of different species composition, and time of sowing at the Experimental field of the Agricultural University in Plovdiv, Bulgaria.

From 1055 numbers of pollinators registered in grass mixtures, the highest number was from genus *Megachile* – 500 number, honey bee (*Apis mellifera* L.) – 303 and Flower flies – 214.

6. Iv. Semerdjieva, **S. Georgiev**, K. Koev, B. Sidjimova, E. Yankova-Tsvetkova. 2017. Distribution and Resources of the Medicinal Plant *Colchicum autumnale* L. In Bulgaria. *Ecologia Balkanica* – Vol. 9(1), 39-51 p., 2017, ISSN 1314-0213, 1313-9940. Scopus (2015) (2017-2018) (Q4), Web of Science (2009-).

Summary

Colchicum autumnale (Colchicaceae) is a perennial geophyte and a medicinal plant. Its biomass is collected for industrial uses for obtaining the alkaloids colchicine and demecolcine. The objective of the present study was to estimate the distribution and potential resources of *C. autumnale* populations in Bulgaria in terms of their sustainable use. Monitoring of habitats was carried out in concrete harvesting areas. The distribution of the populations and the amount of drug production in specific sites and conditions were studied. In 2014-2015, eleven localities were established in seven floristic regions, spread on an area of 498000 m². Seed resources obtained from the different populations ranged from 3.57 g to 12225 g. The seed yield depends on the environmental conditions, the number of plants per m², the number of fruit capsules per plant and the weight of the seeds contained in them. Changes in the management approach to habitats occupied by *C. autumnale* caused degradation of the areas, resulting in the decrease of the population density of the species.

7. Kiril Vassilev*, Hristo Pedashenko, Alexandra Alexandrova, Alexandar Tashev, Anna Ganeva, Anna Gavrilova, Asya Gradevska, Assen Assenov, Antonina Vitkova, Borislav Grigorov, Chavdar Gushev, Eva Filipova, Ina Aneva, Ilona Knollová, Ivaylo Nikolov, Georgi Georgiev, Georgi Gogushev, Georgi Tinchev, Kalina Pachedjieva, Koycho Koev, Mariyana Lyubenova, Marius Dimitrov, Nadezhda Apostolova-Stoyanova, Nikolay Velev, Petar Zhelev, Plamen Glogov, Rayna Natcheva, Rossen Tzonev, Steffen Boch, Stephan Hennekens, **Stoyan Georgiev**, Stoyan Stoyanov, Todor Karakiev, Veronika Kalníková, Veselin Shivarov, Veska Russakova & Vladimir Vulchev. 2016. Balkan Vegetation Database: Historical background, current status and future perspectives. *Phytocoenologia* Vol. 46 (2016), Issue 1, 89–95 ISSN 0340-269X. Web of Science; Scopus (Q2).

Summary

The Balkan Vegetation Database (BVD; GIVD ID: EU-00-019; <http://www.givd.info/ID/EU-00-019>) is a regional database that consists of phytosociological relevés from different vegetation types from six countries on the Balkan Peninsula (Albania, Bosnia and Herzegovina, Bulgaria, Kosovo, Montenegro and Serbia). Currently, it contains 9,580 relevés, and most of them (78%) are geo-referenced. The database includes digitized relevés from the literature (79%) and unpublished data (21%). Herein we present descriptive statistics about attributive relevé information. We developed rules that regulate governance of the database, data provision, types of data availability regimes, data requests and terms of use, authorships and relationships with other databases. The database offers an extensive overview about studies on the local, regional and SE European levels including information about flora, vegetation and habitats.

8. Kiril Vassilev, Momchil Nazarov, Constantin Mardari, Borislav Grigorov, **Stoyan Georgiev**, Beloslava Genova, Nikolay Velev. 2022. Syntaxonomical and ecological diversity of the class *Polygono-Poetea annuae* in Bulgaria. *Acta Botanica Croatica*, 81(1), 32–41. ISSN 0365-0588, eISSN 1847-8476. Web of Science; Scopus (Q3).

Summary

Class *Polygono-Poetea annuae* Rivas-Mart. 1975 includes therophyte-rich vegetation on trampled habitats. The study presents the first analysis of the syntaxonomy of this class and its ecology in Bulgaria. One hundred seventy-five relevés from this class were collected and stored in the Balkan Vegetation Database during 2017–2020. Numerical classification (hierarchical divisive) and ordination were performed by JUICE and CANOCO software packages. Diagnostic species were determined by calculating the Phi-coefficient. Four associations, *Sclerochloo durae-Polygonetum arenastri*, *Polygonetum arenastri*, *Lolio-Polygonetum arenastri* and *Poltum annuae*, were recognized. Their floristic composition has been shaped mainly by climatic and soil conditions. *Sclerochloo durae-Polygonetum arenastri* association has been found at lower altitudes, occurring in fully lighted habitats with high radiation, whereas *Poltum annuae* has been found at higher altitudes in wetter and cooler areas. On the other hand, stands of *Polygonetum arenastri* have been found on nutrient-rich soils, whereas communities of *Lolio-Polygonetum arenastri* were distributed in warmer and nutrient-poor areas. The *Polygono-Poetea annuae* class is still poorly studied in Bulgaria and much more information from all regions of the country needs to be collected and analyzed.

9. Momchil Nazarov, Nikolay Velev, Constantin Mardari, Borislav Grigorov, **Stoyan Georgiev**, Beloslava Genova, Kiril Vassilev. 2022. Syntaxonomy and ecology of *Petasites albus*, *p. hybridus* and *p. kablikianus* phytocoenoses in Bulgaria and Romania. Доклади на Българската академия на науките, Tome 75, No 1, 2022, 43–55p., ISSN 1310-1331 (print), 2367-5535 (online). Scopus (1997) (2002) (2007-) (Q2), Web of Science (1990-1997) (CABI) (2003-)

Summary

In this study the phytocoenoses of *Petasites albus*, *P. hybridus* and *P. kablikianus* were investigated on the territory of Bulgaria and Romania. Numerical classification and ordination were performed by PC-ORD and JUICE software packages. Diagnostic species were determined by calculating the Phi-coefficient. Three associations of the *Petasition officinalis* alliance were recognized – *Petasitetum albae* Dihoru ex

Nazarov et al. 2022, Petasitetum hybrido-kablikani Sillinger 1933, and Telekio-Petasitetum hybridi Morariu ex Resmeri, ĩa et Ratiu 1974.

10. Kiril V. Vassilev, Momchil I. Nazarov, Beloslava N. Genova, Borislav G. Grigorov, **Stoyan I. Georgiev**, Nikolay I. Velev. 2021. Syntaxonomical and Ecological Diversity of Class *Artemisietea vulgaris* Lohmeyer et al. in Tx. ex von Rochow 1951 in Bulgaria. *Ecologia Balkanica* – Vol. 13(1), 177-196 p., 2021, ISSN 1314-0213, 1313-9940. Scopos (2015) (2017-2018) (Q4), Web of Science (2009-).

Summary

Class *Artemisietea vulgaris* includes thermophilic and (sub)xerophytic ruderal vegetation, which consists mostly of biannual and perennial seminitrophilous to nitrophilous species, widely distributed in the temperate and the submediterranean zones of Europe. The study presents a comprehensive review of its ecology and syntaxonomy on the territory of Bulgaria, based on 160 releves stored in the Balkan Vegetation Database and selected using the "EuroVegChecklist Expert System". Numerical classification and ordination were performed by hierarchical agglomerative clustering and Detrended Correspondence Analysis. The diagnostic species were determined by calculating the Phi-coefficient. The syntaxonomical diversity of the class *Artemisietea vulgaris* on the territory of Bulgaria is presented by 2 orders (*Agropyretalia intermedio-repentis*, *Onopordetalia acanthii*), 3 alliances (*Convolvulo arvensis-Elytrigion repentis*, *Dauco-Melilotion* and *Onopordion acanthii*), 10 associations (*Convolvulo arvensis-Elytrigietum repentis*, *Falcario vulgaris-Elytrigietum repentis*, *Convolvulo arvensis-Brometum inermis*, *Cardarietum drabae*, *Tanaceto vulgaris-Artemisietum vulgaris*, *Melilotetum albo-officinalis*, *Berteroetum incanae*, *Poo compressae-Tussilaginetum farfarae*, *Potentillo argenteae-Artemisietum absinthii* and *Carduo acanthoidis-Onopordetum acanthii*) and 1 plant community (*Achillea pannonica-Elytrigia repens*). One order, two alliances and nine associations were discovered for the first time in the country. All of the syntaxa are well separated floristically and ecologically in the ordination space. The associations of the alliance *Dauco-Melilotion* represent initial stages of succession of antropogenic habitats and has higher species diversity, whereas those of the alliances *Convolvulo arvensis-Elytrigion repentis* and *Onopordion acanthii* represent more stable antropogenic vegetation types and have lower species richness.

Показател Г6

1. **С. Георгиев**. 2021. Флора и растителност на заливните гори по поречието на р. Марица и р. Тунджа. Интел Ентранс ISBN: 978-619-7554-64-9

Summary

The study is carried out in vegetation seasons of 2010 – 2012, studies have flora and vegetation: Reserve "Gorna Topchiya", Maintained Reserve "Dolna Topchiya", Maintained reserve "Balabana", Protected Area "Nahodishte na blatno kokiche" village. Vinica and Protected Area "Nahodishte na blatno kokiche" village Gradina. This work is made eco- biology characteristics of higher plants, and species are distributed biological groups, life forms, floral elements and during flowering. Plant species are classified according to their relationship to water, light and heat. Medicinal plants are also studied and characterized in protected areas. Vegetation is described according to the principles of Braun-Blanquet. A comparison is made between the five protected areas.

There have been differences in only three of the studied parameters.

In terms of mobility in Maintained Reserve "Dolna Topchiya" prevailing stationary species. In the other dominant species penetrated by secondary displacement.

Comparing the distribution of plants and environmental groups to water as a factor showed differences in the five studied sites. Maintained Reserve "Dolna Topchiya" is the only area in which there is permanent water sites, allowing the development of hydrophytes vegetation. Reported prolonged spring flooding of the Protected Area "Nahodishte na blatno kokiche" village Gradina and high groundwater creating favorable conditions for the development of hygrophytes plants (37.5%), which is about 10% more than the other four categories.

In Protected Area "Nahodishte na blatno kokiche" village Gradina prevail Euro-Mediterranean Geoelements her in other Euro-Asian species.

When analyzing medical plants reported uniformity within five study subjects, in terms of environmental factors, floral elements and biological forms.

Forest vegetation in the Protected Area "Nahodishte na blatno kokiche" village Gradina refers to association *Leucojo aestivi-Fraxinetum angustifoliae* Glavač 1959, in other protected areas to association *Smilaco excelsae-Fraxinetum oxycarpae* (Soó 1957) D. Pavlov et M. Dimitrov 2002.

Показател Г7

1. **S. Georgiev**, K. Koev, T. Barakova, N. Kochev. 2019. Eco-biological characteristics of flora in protected area "Dabeto". *Silva balcanica* 20 (3): 39-45 p., 2019, ISSN 1311-8706. Scopus (2001-2017), Web of Science (2001-2007) (2009-) (CABI)

Summary

The present study explores the floristic diversity in the Dabeto Protected Area (PA), situated in the vicinity of Novi Izvor Village, Plovdiv District. Vascular plants in PA Dabeto were studied through systematic observations and collecting herbarium material during the growing seasons in 2014-2016. The species list includes 160 vascular plants of 124 genera and 42 families. The vast majority of the plants are perennial herbaceous species, hemicryptophytes, species with European and Mediterranean origin, thermophytes or mezophytes and heliophytes. The species were grouped with respect to the soil moisture, temperature and light. Additionally, they were characterised with respect to the life forms and floristic elements.

2. **S. Georgiev**, K. Vasilev, T. Barakova, K. Koev. 2019. Floristical investigation of "Yazovir Konush" Natura 2000 Site (BG0002015), Southern Bulgaria. *Ecologia Balkanica* Vol. 11(2): 155-166 p., 2019, ISSN 1314-0213, 1313-9940. Scopus (2015) (2017-2018) (Q4), Web of Science (2009-).

Summary

"Yazovir Konush" NATURA 2000 site (BG0002015) is situated near Konush village, Plovdiv district and occupies an area of 0.376 ha. It was established for protection of the habitats of bird species, included in Biological Diversity Act and Bird Directive as a part of NATURA 2000 network of Bulgaria. Vascular plant diversity was investigated during 2012-2014 field working seasons using transect and semi-stationary sampling methods. All species were categorized by biological groups, life forms and floristic elements. The plants were classified by ecological groups according to their preference to water, light and heat conditions. A total of 172 vascular plants were identified. They belong to 50 families and 133 genera. One hundred and three species are medicinal plants, which comprise more than 59.8% of the total flora of the study area. The richest families are *Fabaceae*, *Asteraceae*, *Lamiaceae*, *Poaceae*, *Brassicaceae* and *Rosaceae*. Among the richest genera are *Vicia*, *Carex*, *Veronica*, *Rumex*, *Lathyrus*, *Trifolium* and *Potentilla*, which comprise more than 14.5% of the total flora of the study area. Only 2 species in the floristical composition with conservation status were identified (*Cephalanthera damasonium* and *C. rubra*). The ecological analysis showed that the flora of the investigated area is dominated by hemicryptophytes (41.3%), followed by terophytes (26.7%). Mesophyte and heliophyte species are predominant, whereas Euro-Asiatic and Euro-Mediterranean floristic elements are the most widely distributed floristic elements in the study area.

3. **S. Georgiev**, Koev, K. Kalacheva, D. 2010. Floristic characteristics of Chirpanska Gora preserve. *Biotechnology & Biotechnological Equipment* Volume 24, Number 2, 2010. 186 - 199 p., ISSN 1310-2818 (print) 1314-3530 (online). Scopus (1990-), Web of Science (1993-1998) (2002-).

Summary

A research was conducted, prospecting the vegetation in Chirpanskata Gora Preserve. A list of the determined species of supreme plants was prepared based on this. The taxonomic structure of the flora and the ecological and biological characteristics were defined. The relicts, endemics and medicinal plants on the researched territory were mapped as result of the research. The availability of taxa of conservative importance, according to the Bulgarian legislation, was analyzed. The observed anthropogenic influence was analyzed and based on this conclusions were drawn and recommendations were made, which guarantee the resilient presence of Chirpanskata Gora Preserve in perspective.

4. K. Koev, D. Kalacheva, **S. Georgiev**. 2010. Floristic characteristics and ecological evaluation of Debelata koria preserve, Chernozemen village. *Biotechnology & Biotechnological Equipment* Volume 24, Number 2, 2010. 200-212 p., ISSN 1310-2818 (print) 1314-3530 (online).

Summary

A research was conducted, prospecting the vegetation and flora in Debelata Koria Preserve, located along the Valley of Stryama River, which is part of Kraishtensko –Tundzhanska interim zone in the region of

Gornotrakiyska lowland. The taxa of the supreme seed vegetation, the ecological and biological structure, the elements of conservative importance and the negative anthropogenic influences were determined as result of the research. Two species of high preservative value and two species that have not been mentioned before for this floral region were discovered.

5. T. Barakova, **S. Georgiev**. 2019. After-effect of foliar-applied herbicides for broad-leaved weeds on the primary germ weight of cotton seeds (*Gossypium hirsutum* L.). Agricultural Science and Technology, vol 11, № 3, 221-225 p., 2019, ISSN 1313-8820, 1314-412X. Web of Science (1994) (2009-) (CABI).

Summary

The trial was carried out during 2013-2015, with twelve cotton cultivars (*Gossypium hirsutum* L.). Influence of herbicides Bazagran 480 SL (bentazone)- 1.5 L/ha, Pulsar 40 (imazamox) - 1.2 L/ha and Express 50 VG (tribenuron-methyl) - 50 g/ha was studied. These herbicides were used during the budding stage of cotton. From the viewpoint of cotton growing technology, technologically the most valuable are cultivars Helius, Trakia, Viki, Filipopolis, Boyana, Avangard, Natalia, Darmi, Dorina and Nelina, in foliar treatment with herbicide Bazagran 480 SL. Technologically the most valuable are cultivars Chirpan-539, Helius, Viki, Boyana and Natalia in foliar treatment with herbicide Pulsar 40. Technologically the most valuable are cultivars Helius, Trakia, Viki and Nelina in foliar treatment with herbicide Express 50 VG. These variants combine high primary germ weight and high stability of this index during the different years.

6. **S. Georgiev**, K. Koev, T. Barakova, N. Kochev. 2019. Characteristics of medicinal plants in protected area "Dabeto". Bulgarian Journal of Crop Science, 56(3), 36-40 p., 2019, ISSN 0568-465X, 2534-9848. Web of Science (1970-1992) (CABI) (1995-2003) (CABI) (2004) (2006-2011) (CABI) (2016-).

Summary

The present study examines the medicinal plants in the protected area PA "Dabeto", Novi izvor village in the region of Plovdiv. The received data is based on a three-year research of the flora in the protected zone. Ecobiological characteristic of the medicinal plants is made, and the species are distributed by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor. Conclusions for the presence by percentage of medicinal flora in the protected area are made.

7. Y. Dimitrov, N. Palagacheva, R. Mladenova, P. Zorovski, **S. Georgiev**, Zh. Radev, M. Dimova & L. Dospatliev. 2018. Establishment of Grass Strips for Maintaining Biodiversity in Agroecosystems. Journal of Agricultural Science; Vol. 10, No. 3, 90-95 p., 2018, ISSN 1916-9752, 1916-9760. Web of Science (CABI).

Summary

Main principle of the common agricultural policy of European Union is achievement of high results with the least possible negative impact on the environment, land protection and efficient use of natural resources. For that purpose, a number of studies are carried out, related to the improvement of biodiversity and protection of the pollinators in the areas of production. Two type of grass mixes were observed: "Laitamag" (Hungary) composed of White mustard (*Sinapis alba* L.), White clover (*Trifolium repens* L.), Phacelia (*Phacelia tanacetifolia* Benth), Crimson clover (*Trifolium incarnatum* L.), Egyptian clover (*Trifolium alexandrinum* L.), Red clover (*Trifolium pratense* L.), Wild oats (*Avena sativa* L.), Alfalfa (*Medicago sativa* L.), Buckwheat (*Fagopyrum esculentum* Moench) and Sainfoin (*Onobrychis viciifolia* Scop.) and a mix, proposed by the Agrarian University: White mustard (*Sinapis alba* L.), White clover (*Trifolium repens* L.), Phacelia (*Phacelia tanacetifolia* Benth), Buckwheat (*Fagopyrum esculentum* Moench), Coriander (*Coriandrum sativum* L.). The vegetation of the autumn crops began in March, as the blossoming lasts for 60-63 days, from the beginning of April until 24 June. For the spring sowing (18 March), the flowering of the mixes occurred later, in the second 10-day period of May and ended at the end of June. As a result of the low temperatures during winter, the white mustard, buckwheat and sainfoin plants perished. White clover proves to be the most resilient species.

8. Y. Dimitrov, N. Palagacheva, R. Mladenova, P. Zorovski, **S. Georgiev** & Zh. Radev. 2018. Enhancing the Biodiversity of Insects Pollinators through Flowering Grass

Strips. Journal of Agricultural Science; Vol. 10, No. 3, 96-101 p., 2018, ISSN 1916-9752, 1916-9760. Web of Science (CABI).

Summary

The extensive use of plant protection products in agricultural practice and obtaining high and top quality yields results in decline of a major part of the natural regulators and the insects-pollinators. The reduction in their numbers in agricultural areas poses a threat for the pollination of entomophilous plants on global scale. The objective of this study was to establish areas of flowering varieties of grass mixes, ensuring proper habitats and food source for the pollinators of agricultural crops. The tests showed that the plant varieties in the grass mixes blossomed in the period April to June (1.5-2 months), providing varying species of pollinators, depending on the plants species. In the different-coloured layers of the grass mixtures: white, purple and yellow, the following pollinators were determined: *Apis mellifera* L., *Megachile* sp., *Halictus scabiosae* Rossi, *Lasioglossum xanthopus* Kirby, *Melita leporita*, *Andrena flavipes* Panzer., *Macropis europaeae* Warn., *Anthidium manicatum* L., *Ceratina cucurbitina* Rossi and *Ceratina* sp.

9. A. Tashev, K. Koev, N. Tashev, **S. Georgiev**. 2013. New data on the vertical distribution of some arboreal species of the flora in Bulgaria . FORESTRY IDEAS, 2013, vol. 19, No 2 (46): 201–207 p., ISSN 1314-3905 (print) 2603-2996 (online). Scopus (2016-) (Q4) Web of Science (2011-) (CABI).

Summary

During floristic studies in different floristic regions of Bulgaria in the period 2006-2012, we found habitats of *Juniperus deltoides*, *J. sibirica*, *J. pygmaea*, *Pinus nigra* ssp. *pallasiana*, *Quercus coccifera*, *Q. dalechampii*, *Alnus incana*, *Rhamnus saxatilis*, *R. rhodopaeus*, *Astracantha thracica*, *Ilex aquifolium* that expand our knowledge of the vertical distribution of these species in Bulgaria, and hence their ecological niche in the country. The work also specifies the vertical distribution of *Pseudotsuga menziesii*, an adventitious species of the flora in Bulgaria, whose vertical distribution has not been noted in any literary source.

10. N. Palagacheva, S. Rashev, **S. Georgiev**. 2021. Harmful Entomofauna in the Cotton Agroecosystem in the Region of Chirpan. Journal of Mountain Agriculture on the Balkans, 2021, 24 (4), 245-257, ISSN 1311-0489 (print) 2367-8364 (online). Web of Science (1998-) (CABI).

Summary

During the period 2019-2020 at the Institute of Field Crops – Chirpan we studied the species composition of insects inhabiting cotton fields. The samples were collected by the classical entomological methods - soil excavations, visual observations, route inspections, mowing with an entomological bag throughout the growing season.

Studies in the cotton agroecosystem have identified more than 20 species of insects and mites, their development during the growing season and the critical periods for the culture associated with their reproduction.

Compared to the previous study period (2010–2013), there is a reduction in the number of pests in the agroecosystem, but the preservation of species that are at economic risk to the crop: cotton aphid (*Aphis gossypii* Glover), tobacco thrips (*Thrips tabaci* Lind.), Common spider mite (*Tetranychus urticae* L.), cottonworm (*Helicoverpa armigera* Hub.) and tear moth (*Pectinophora malvella* Hb.).

11. A. Tashev, K. Koev, N. Tashev, **S. Georgiev**. 2013. New Data on the Vertical Distribution of Some Species of the Flora in Bulgaria. Ecologia Balkanica – Vol. 5(2), 7-11 p., 2013, ISSN 1314-0213, 1313-9940. Scopus (2015) (2017-2018) (Q4), Web of Science (2009-).

Summary

During field studies in different floristic regions of Bulgaria in the period 2006-2013, we found localities of *Stellaria alsine*, *Trifolium heldreichianum*, *Koeleria nitidula*, *Sieglingia decumbens*, *Stipa tirsia*, *Verbascum formanekii*, *Pedicularis leucodon*, *Saxifraga sibirica*, *Inula aschersoniana* and *Scilla bifolia* that expand our knowledge of the vertical distribution of these species in Bulgaria, and hence their ecological niche in the country.

12. Sp. Nedyalkova, T. Barakova, **S. Georgiev**, St. Rashev. 2021. Phytosanitary Monitoring of Fodder Peas Variety Mir Grown in Conventional and Organic Agricultural. Journal of Mountain Agriculture on the Balkans. 2021, 24(3), 107-123. ISSN 1311-0489 (print) 2367-8364 (online). Web of Science (1998-) (CABI).

Summary

During the period 2019–2020 on the experimental field in FCI – Chirpan was conducted a survey of crops of winter fodder peas variety Mir, grown in conventional and organic farming. Entomological and phytopathological observations were made, reporting the presence and density of weeds to the mass flowering phase – the beginning of crop fruiting in both systems of cultivation.

The following pests were found in conventionally and organically grown peas: pea-eater – *Bruchus pisorum* L., beetles of the genus *Sitona* – *Sitona lineatus* L. and *Sitona crinitus* Herbst and green pea aphid – *Acyrtosiphon pisi* Kalt.

Three predators have been identified from the beneficial entomofauna: from the family Coccinellidae – seven-spotted ladybug *Coccinella septempunctata* L., from the family Chrysopidae – common goldfinch *Chrysopa carnea* Steph. and from the family Syrphidae – syrphid fly *Scaeva pyrastrii* L. and two parasites from the family Braconidae.

Examination of the pea revealed the development of the pathogen *Peronospora pisi* (De Bary), the cause of pea blight. The presence and density of weed species have been reported; white dog quinoa *Chenopodium album* L., field bonito *Cirsium arvense* (L.) Scop., common plover *Consolida regalis* L., common squirrel *Convolvulus arvensis* L., red dead nettle *Lamium purpureum* L., common chamomile *Matricaria chamomilla* L., squirrel *Polygonum convolvulus* L., wild radish *Raphanus raphanistrum* L., field mustard *Sinapis arvensis* L., balur *Sorghum halepense* L. and ivy *Veronica hederifolia* L.

Due to the fact that conventionally and organically grown peas were not treated with insecticides, the species composition and density of pests and aphidophages in both cultivation systems were almost the same.

Показател Г8

1. **S. Georgiev**, K. Koev., A. Tashev. 2017. Eco-biological characteristics of medicinal plants in protection zone "Yazovir Konush" village Konush (Bulgaria). Proceedings of the VIII International Agricultural Symposium „AGROSYM 2017“, 1710-1715 p., 2017, ISBN 978-99976-718-1-3.

Summary

The present study examines the medical plants in the protected zone “Yazovir Konush”, Konush village in the region of Plovdiv in Bulgaria. Eco-biological characteristic of the medical plants is made, and the species are categorized by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor. Conclusions for the presence by percentage of medicinal flora in the protected zone are made. The research held in the period 2012-2014 of the medicinal plants in protected zone “Yazovir Konush” shows that there are 100 species plants from 82 genera and 40 families. Among these plants the majority are the perennial herbaceous species, the hemicryptophytes, the species with European and Mediterranean origin, the thermophytes, the mezophytes and the heliophytes.

2. T. Barakova, G. Delchev, N. Valkova, **S. Georgiev**. 2019. After-effect of foliar-applied herbicides for broad-leaved weeds on the primary germ length of cotton seeds (*Gossypium hirsutum* L.). International Journal of Innovative Approaches in Agricultural Research, Vol. 3 (4), 601-610 p., 2019, ISSN: 2602-4772.

Summary

The trial was carried out during 2013-2015, with twelve cotton cultivars (*Gossypium hirsutum* L.). Influence of herbicides Bazagran 480 SL (bentazone), Pulsar 40 (imazamox) and Express 50 VG (tribenuron-methyl) was studied. These herbicides were used during the budding stage of cotton. The herbicide Bazagran 480 SL has the highest phytotoxicity on the primary germ length of seeds of cotton cultivars Chirpan-539 and Trakia and the lowest on cultivar Natalia. The herbicide Pulsar 40 has the highest phytotoxicity on the primary germ length of seeds of cotton cultivar Dorina and the lowest on the cultivars IPK-Veno and Viki. The herbicide Express 50 VG has the highest phytotoxicity on the primary germ length of seeds of the cotton cultivar Chirpan-539 and the lowest on the cultivars Helius and Trakia.

From the viewpoint of cotton growing technology, technologically the most valuable are all cultivars, by foliar treatment with herbicide Bazagran 480 SL. Technologically the most valuable are cultivars Viki, IPK-Veno, Boyana and Natalia by foliar treatment with herbicide Pulsar 40. Technologically the most valuable are cultivars Helius, Trakia, Viki, Avangard and Nelina by foliar treatment with herbicide Express 50 VG. These variants combine high primary germ lengths and high stability of this index during the different years.

3. T. Barakova, **S. Georgiev**, G. Delchev. 2019. After-effect of Some Herbicides and Their Mixtures with Growth Regulator and Foliar Fertilizer on the Primary Germ Weight of Cotton Seeds (*Gossypium Hirsutum* L.). *International Journal of Innovative Approaches in Agricultural Research*, Vol. 3 (4), 591-600 p., 2019, ISSN: 2602-4772.

Summary

The trial was carried out during 2013-2015, with two cotton cultivars – Helius and Darmi (*Gossypium hirsutum* L.). Herbicides Goal 2 E (oxifluorfen), Linuron 45 SC (linuron), Wing P (pendimethalin + dimethenamid), Merlin 750 WG (izoxaflutole), Bazagran 480 SL (bentazone) were studied. These herbicides were used alone or in combinations with the growth regulator Amalgerol premium or with the foliar fertilizer Lactofol O during the budding stage of cotton. From the viewpoint of cotton growing technology, technologically the most valuable are combinations of all herbicides with Lactofol O, which are followed by Wing-P + Amalgerol, Bazagran 480 SL + Amalgerol and sole use of herbicide Wing-P on cultivar Helius. Technologically the most valuable are herbicides Goal 2 E and Wing-P and tank mixtures Goal 2 E + Amalgerol, Wing-P + Amalgerol, Merlin 750 WG + Amalgerol, Bazagran 480 SL + Amalgerol, Wing-P + Lactofol O, Merlin 750 WG + Lactofol O and Bazagran 480 SL + Lactofol O on cultivar Darmi. These variants combine biggest primary germ weight and high stability of this index during the different years. The alone use of the herbicides Linuron 45 SC and Merlin 750 WG has low assessment and should be avoided.

4. А. Карова, **С. Георгиев**, К. Коев, Н. Салим. 2014. Възможности за биологично отглеждане на маслодайна роза в България. Сборник доклади от X юбилейна научно-техническа конференция с международно участие "Екология и здраве" Vol. 10, 53-58 p. ISSN 1314-1880.

Summary

Bulgaria is among the leading producers of rose oil from oil-bearing rose, *Rosa damascena* Mill. The value of rose oil is increasing when produced of roses grown in terms of certified organic farming. More than ten years of practical experience has been gained in our country in this direction and areas occupied by plantations managed under organic method of agriculture increased annually. At the same time, there is insufficient research on the characteristics of organic cultivation of oil-bearing rose. In this paper we identify the main differences between organic and conventional cultivation of oil-bearing rose, analyze the practices applied in the plant protection and maintenance of soil fertility, and outline some guidelines for the future development as well as necessities for research.

5. Ташев А. Н., Коев К. С., **Георгиев С. И.** 2013. Эколого-биологическая характеристика лекарственных растений в охраняемой местности "местообитание белоцветника летнего" (верхнефракийская низина, Болгария). Новосибир. гос. аграр. ун-т. Новосибирск: Изд-во НГАУ, 2013, 96-99 p. ISBN 978-5-94477-130-8.

Summary

The present study examines the medicinal plants in the protected area "Nahodishte na blatno kokiche", Vinitza village, region of Plovdiv, situated in the middle course of the Maritsa River. The received data is based on three-year research in the floodplain forests in the protected area and analyses of the literary sources. Eco-biological characteristic of the medicinal plants is made, and the species are distributed by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor.

6. Ташев О. Н., Коев К.С., **Георгиев С.И.** 2014. Еколого-Биологична характеристика лікарських рослин в місцевості, що охороняється, "Дебелата корія"(Верхньофракийська низовина, Болгарія). Третьої Міжнародної науково-

практичної інтернет-конференції - Полтава. Полтавська державна аграрна академія, 2014, 79-84 р.

Summary

The present study examines the medicinal plants in the protected area “Debelata koriya”, Chernozemen village, region of Plovdiv, situated in the middle course of the Stryama River. The received data is based on three-year research in the floodplain forests in the protected area and analyses of the literary sources. Eco-biological characteristic of the medicinal plants is made, and the species are distributed by biological groups, by life forms, by floral elements, and by time of flowering. The plants are classified by ecological groups according their regard towards the water, the light and the heat as a factor.

7. Коуcho Коев, **Stoyan Georgiev**, Alexander Tashev. 2014. Еко-биологична характеристика на медицинските растения в защитена местност „Чирпанската кория”. Научни трудове на Съюза на учените в България – Пловдив, серия Б. Естествени и хуманитарни науки, т. XVI. Научна сесия „Техника и технологии, естествени и хуманитарни науки”, 30-31. X. 2013. Vol. XVI с. 13-20, ISSN 1311-9192.

Summary

In the present work we investigated medicinal plants of the flora of the protected area “Chirpanskata koriya”. A characteristic was made of the systematic structure of the eco-biological features of these plants. In result of this study medicinal plants are grouped according to their relation to the main environmental factors – water, light and heat. The species were distributed in biological groups, life forms, floral elements and flowering period. There has anthropological pressure and on this basis formulated conclusions and recommendations, that ensure the persistence of protected area „ Chirpanskata koriya „, in the system of protected areas within the Republic of Bulgaria.