



The Balkan Botanical Congress is an international meeting that has been held nearly every three years, since 1997. It brings together botanists from around the world who perform research on plants in the widest sense, as well as scientists who are engaged in the plant sciences and their applications. We were honored to host such an extraordinary scientific event this year in Serbia.

The 7th Balkan Botanical Congress – 7BBC 2018 took place in Novi Sad from September 10th to 14th 2018. The Congress was organized by the University of Novi Sad, Faculty of Sciences, Department of Biology and Ecology and the “Andreas Wolny” Botanical Society, along with the great help of 7 co-organizers and more than 30 supporters and sponsors. It truly was not possible to happen without exceptional help of our co-organizer - the Institute for Nature Conservation of Vojvodina Province who made this congress not only possible, but totally awesome.

7BBC 2018 placed a special emphasis on plants of the Balkan Peninsula and covered various research fields. The Congress was organized into ten sessions: Plant Anatomy and Physiology, Plant Taxonomy and Systematics, Plant Molecular Biology and Genetics, Floristics, Vegetation and Phytogeography, Conservation Botany and Plant Invasions, Phytochemistry and Plant Resources, Agronomy and Forestry, Botanical Collections and History, Ethnobotany and Cryptogam Biology. These topics were elaborated through five plenary lectures given by eminent scientists, as well as in the form of introductory lectures, oral and poster presentations. With an overall number of 387 abstracts presented on the very latest of botanical science, we shared knowledge, expertise and novel ideas. We welcomed nearly 400 scientists to Novi Sad, and we believe that we succeeded in our joint endeavor to make new networks and new connections among botanists. We hope that we contributed to advancements in the wide and beautiful field of botany, ranging from fundamental botanical research to applied botany.

It is our great pleasure to publish this Abstract Book in *Botanica Serbica*, in the same year that this international journal, a renamed continuation of the *Bulletin of the Institute of Botany and Botanical Garden Belgrade*, celebrates its 90 year jubilee. On behalf of the Scientific and Organizing committee of 7BBC 2018 we would like to express our gratitude to all contributors, colleagues and sponsors for taking part in the 7th Balkan Botanical Congress, as well as for their efforts and contributions to its successful realization.

Goran Anačkov and Lana Zorić,
Co-presidents of the Scientific Committee of the 7 BBC
and guest editors of *Botanica Serbica* 42 (supplement 1).

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Sessions:

The 7th Balkan Botanical Congress consists of plenary lectures, introductory lectures of each session, as well as oral and poster presentations on the following topics:

Sessions 1. Plant Anatomy and Physiology

Sessions 2. Plant Taxonomy and Systematics

Sessions 3. Plant Molecular Biology and Genetics

Sessions 4. Floristics, Vegetation and Phytogeography

Sessions 5. Conservation Botany and Plant Invasion

Sessions 6. Phytochemistry and Plant Resources

Sessions 7. Agronomy and Forestry

Sessions 8. Botanical Collections and History

Sessions 9. Ethnobotany

Sessions 10. Cryptogam Biology

ent morphological forms while others closely resemble each other. In this work, anatomical investigations of vegetative organs of *Artemisia campestris* L. (Compositae), wild-growing species from Montenegro, were conducted. The aim of this study was to examine the general anatomy and particular anatomical features which are in relation with production of specialized metabolites, as well as to find possible new valid taxonomic characters. Microscopic slides were prepared following the standard histological procedures. Typical secondary growth occurs in the older root with small group of sclerenchyma fibers scattered in the cortex. The stem cross section is characterized by more or less round shape with collateral vascular bundles. The largest parenchyma cells, with lignified cell walls, occur in the pith. Below the epidermis, well developed hypodermis could be noticed, made up of a several layers of enlarged cells arranged in radial rows. Leaf cross section has triangular shape, with well developed cuticle and the isolateral palisade structure. Secretory ducts are present in the root and stem cortical parenchyma, as well as in the leaf parenchyma. The stem and leaves are almost glabrous, with a very few trichomes that are noticed. All of the obtained data, may be considered as possible valid taxonomic characters which could be helpful in species identification and infrageneric taxonomy of the genus *Artemisia*. Thus, these findings are of importance for future anatomical, micromorphological and phytochemical investigations of this and related species of the genus.

KEYWORDS: *Artemisia campestris*, Asteraceae, anatomy

Poster presentation 12 01 37

MORPHO-ANATOMICAL DISTINCTION OF SIMILAR TAXA: *INULA BRITANNICA* L. AND *I. OCULUS-CHRISTI* L.

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Inula britannica and *I. oculus-christi* are well defined species, but morphological similarity between them is notable and, indisputably, they resemble to each other. Due to their morphological variability conditioned by environmental factors, specimens of each have commonly been misidentified. In the present study, detailed morpho-anatomical analyses of leaf, stem, rhizome, fruit and receptacle of *I. britannica* and *I. oculus-christi* were performed. The objective was to define further characters that would be useful in taxonomic delimitation of those species. Plant material was collected from native populations and each of the species was collected from the five localities, ten samples from ten different individuals belonging to each population were analysed. Cross-sections

of leaves, stems, rhizomes and fruits were obtained using cryotechnique procedure by Leica CM 1850 cryostat. Detailed descriptions of anatomical characteristics of the analyzed organs were given using light microscopy, while Scanning Electron Microscopy revealed specific qualitative features of leaf, fruit and receptacle that characterized each species. Our results indicated the taxonomic relevance of the leaf and fruit indumentum, presence of trichome types on receptacle surface, fruit and pappus dimension, number of fruit sclerenchymatous bundles, organization of stem chlorenchyma and number of vascular bundles on stem cross section, in distinguishing these two species. Obtained data are useful in species identification and represent the valuable contribution to morpho-anatomical differentiation of those congeneric, commonly misidentified, taxa.

KEYWORDS: anatomy, micromorphology, *Inula*

Poster presentation 13 01 18

DEVELOPMENT, ANATOMY AND HISTOCHEMISTRY OF LEAF TRICHOMES OF *INULA BRITANNICA* L. (ASTERACEAE)

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Inula britannica L. (Asteraceae) is an erect biennial or perennial plant distributed in Europe and Asia, where it typically thrives in a variety of moist habitats. The genus *Inula* is known for its great biological activity, which is based on a large number of secondary metabolites that plants synthesize and accumulate mostly in glandular trichomes. Accordingly, the aim of present study was to describe the development, structure and chemical composition of the secreted material of leaf glandular trichomes of *in vitro*-grown *Inula britannica*. Morpho-anatomical and histochemical analyses of the leaf trichomes were carried out using conventional light and Raman spectroscopy. On both leaf surfaces of *in vitro* *Inula britannica* plants, two classes of trichomes were recognized: mechanical and glandular capitate trichomes. Glandular trichomes started as outgrowths of epidermal cells; first periclinal division generated the upper and lower cells. Subsequent divisions of the upper cell gave rise to stalk and secretory cells of glandular trichomes. The mature glandular trichomes were multicellular and biseriate with two epidermic basal cells, 8–10 penduncle cells and secretory head composed of two cells. Histochemical analysis has shown that different substances were synthesized and accumulated in the leaf glandular trichomes of *in vitro* *Inula britannica*. Lipids, terpenes and alkaloids were stored in a large subcuticular space of glandular trichomes. Besides,

the Raman spectroscopy performed directly on the tissues (in situ) confirmed the presence of terpenes, probably the bicyclic monoterpenes (α -pinenes, recognized according to the highest intensity band at 1653 cm⁻¹) and sesquiterpenes, in the subcuticular space of the leaf trichomes, whose presence indicated the strong intensity band at 1434 cm⁻¹.

ACKNOWLEDGMENTS: This work was supported by projects 173015, 173024 and 31005 of the Ministry of Education, Science and Technological Development of the Republic of Serbia

KEYWORDS: *Inula britannica*, glandular trichomes, Raman spectroscopy, aromatic plant, secondary metabolites

Poster presentation 14 01 33

PHYLLARY CHARACTERISTICS OF WILD PERENNIAL *HELIANTHUS* L. SPECIES

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Phyllaries or involucre bracts surround capitulum of *Helianthus* L. species, play an important role in dispersion, pollination, seed germination and may protect the inflorescences against predators and negative effects of environmental factors. The aim of this research was to conduct comparative micromorphological and anatomical analyses of phyllaries of 19 wild perennial *Helianthus* species. Plant material was hand-collected at the time of physiological maturity. For anatomical analyses cross-sections were obtained from the middle part of the phyllaries using cryotechnique procedure. Micromorphological observation, morphological and histological measurements of phyllaries were performed using light and scanning electron microscopy (SEM). Phyllaries are arranged in three or four circles. The analyzed species showed significant differences in the size of outer phyllary leaves. Among the examined species, the differences in the structure of phyllaries are mostly identified in the number of layers of hypodermis, organization of secretory tissues, position and number of vascular bundles. The SEM analysis showed that all examined species have non-glandular, uniseriate trichomes (NUT) surrounded by a rosette of 7 to 14 silicified cells. Many of examined species have NUT on both sides of leaves with the highest density on the abaxial surface and along the main veins. Also, few of them have NUT present only on the edge of phyllaries. Trichome cells have protuberances on cell walls, along their length. All examined species have presence of multicellular, linear, glandular trichomes (LGT), usually with the highest density on the abaxial surface of leaves. In some of the examined species, capitate glandular trichomes (CGT)

are present on the phyllaries, while species *H. mollis* and *H. nutalli* have CGT on both epidermal sides of the phyllaries. The obtained results significantly contribute to understanding morphological phyllary variability of wild *Helianthus* species and their potential use in breeding program of cultivated sunflower.

ACKNOWLEDGMENTS: This study was supported by Provincial Secretariat for Higher Education and Science of Vojvodina, project 142-451-2422/2018-03.

KEYWORDS: *Helianthus*, bracts, trichomes, morpho-anatomy.

Poster presentation 15 01 10

ANATOMICAL INVESTIGATIONS OF EXTRAFLORAL NECTARIES OF *PRUNUS AVIUM* (L.) L. (ROSACEAE)

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Extrafloral nectaries are nectar-secreting plant glands developing on almost all aboveground plant organs except inside of flowers and are not involved in pollination. Contrary to floral nectaries that attract pollinators, extrafloral nectaries are attractive to predatory nectar-gathering insects, particularly some species of ants which feed on plant-eating insects, and thus significantly reduce the infestation levels and the leaf damage by herbivores. The aim of the present paper is to provide anatomical description of extrafloral nectaries occurring on leaf parts of *Prunus avium*. Fresh samples of full developed leaf glands were micromorphologically examined by stereomicroscope Nikon SMZ18. For light microscopy, the plant material was fixed in FAA and dehydrated with a graded ethanol series, infiltrated and embedded in paraffin, sectioned by sliding microtome (8–10 μ m thick) and stained with Safranin and Alcian blue. Observation and photographs were done using a light microscope Leica DM2000 equipped with a digital camera (Leica DFC320) and Leica IM1000 software. Extrafloral nectaries in *P. avium* occur at two positions: on both sides of the distal part of the petiole and throughout the leaf margin, being located in the top position on the teeth at the base of the leaf blade. The extrafloral nectaries on sides of the distal part of the petiole are larger than the marginal ones. Glands occurring in pairs are easily recognized, prominently elevated, intensively red-colored, and oval or discoid with a central concavity. Nectariferous tissue is composed of the two-layered secretory palisade-like epidermis and a multilayered subepidermal parenchyma vascularized by lateral veins derived from the leaf petiole. Vascular bundles composed of xylem and phloem are sometimes seen as nearly approaching the secretory epidermis. In parenchymatous tissue cells of irregular shapes and different sizes are distinguished: a subepidermal region with 3–4 layers of densely packed cells, and