

DRUŠTVO GENETIČARA SRBIJE  
SEKCIJA ZA OPLEMENJIVANJE ORGANIZAMA

---

SERBIAN GENETIC SOCIETY  
SECTION OF THE BREEDING OF ORGANISMS

DRUŠTVO SELEKCIONERA I SEMENARA  
REPUBLIKE SRBIJE

---

SERBIAN ASSOCIATION OF PLANT  
BREEDERS AND SEED PRODUCERS

# ZBORNİK APSTRAKATA

X SIMPOZIJUMA DRUŠTVA SELEKCIONERA I SEMENARA  
REPUBLIKE SRBIJE

i

VII SIMPOZIJUMA SEKCIJE ZA OPLEMENJIVANJE ORGANIZAMA  
DRUŠTVA GENETIČARA SRBIJE

VRNJAČKA BANJA, 16.-18. OKTOBAR 2023.

# BOOK OF ABSTRACTS

X SYMPOSIUM OF THE SERBIAN ASSOCIATION OF PLANT  
BREEDERS AND SEED PRODUCERS

AND

VII SYMPOSIUM OF THE SERBIAN GENETIC SOCIETY  
SECTION OF THE BREEDING OF ORGANISMS

VRNJAČKA BANJA - SERBIA, 16-18 OCTOBER 2023

Beograd/Belgrade  
2023.

**Izdavač/Publisher**

Društvo genetičara Srbije, Beograd  
Serbian Genetic Society, Belgrade

Društvo selekcionera i semenara Republike Srbije  
Serbian Association of Plant Breeders and Seed Producers, Belgrade

**Urednici/Editors**

dr Vesna Perić, dr Vojka Babić, dr Sandra Cvejić

**Priprema za štampu i realizacija štampe**

ABRAKA DABRA, Novi Sad

**Tiraž**

150

Ova publikacija je štampana uz finansijsku pomoć Ministarstva nauke, tehnološkog razvoja i inovacija

Simpozijum je organizovan u saradnji sa Institutom za kukuruz "Zemun Polje", Beograd i Institutom za ratarstvo i povrtarstvo, Institutom od nacionalnog značaja za Republiku Srbiju, Novi Sad

**ISBN: ISBN-978-86-87109-17-9**

Beograd/Belgrade

2023.

X SIMPOZIJUM DRUŠTVA SELEKCIONERA I SEMENARA REPUBLIKE SRBIJE i VII  
SIMPOZIJUM SEKCIJE ZA OPLEMENJIVANJE ORGANIZAMA DRUŠTVA GENETIČARA  
SRBIJE

Vrnjačka Banja, 16.-18. oktobar 2023.

X SYMPOSIUM OF THE SERBIAN ASSOCIATION OF PLANT BREEDERS AND SEED  
PRODUCERS and VII SYMPOSIUM OF THE SERBIAN GENETIC SOCIETY SECTION OF  
THE BREEDING OF ORGANISMS

Vrnjačka Banja - Serbia, 16-18 October 2023

**Počasni odbor/**

dr Miodrag Tolimir

dr Milena Simić

Prof. dr Jegor Miladinović

Prof. dr Dragana Latković

dr Aleksandar Lučić

dr Darko Jevremović

dr Dejan Sokolović

dr Milan Lukić

dr Nenad Đurić

Prof. dr Nikola Ćurčić

**Naučni odbor/Scientific Committee**

dr Vesna Perić, predsednik

dr Violeta Anđelković

Prof. dr Ana Marjanović Jeromela

dr Aleksandra Radanović

dr Dušan Stanisavljević

dr Ivana S. Glišić

dr Jelena Ovuka

dr Jovan Pavlov

dr Milan Mirosavljević

dr Mirjana Petrović

dr Natalija Kravić

dr Dobrivoj Poštić

dr Nikola Grčić

dr Sanja Mikić

dr Snežana Dimitrijević

dr Sofija Božinović

dr Svetlana Roljević Nikolić

dr Vladan Popović

dr Vladimir Filipović

dr Zdenka Girek

**Organizacioni odbor/Organizing Committee**

dr Vojka Babić, predsednik

dr Sandra Cvejić, zamenik predsednika

dr Aleksandar Popović

Prof. dr Dragana Miladinović

dr Jelena Srdić

dr Milan Jocković

dr Ratibor Štrbanović

dr Vuk Đorđević

**Sekterarijat/Secretariat**

Beka Sarić, master

Danka Milovanović, master

dr Iva Savić

Miloš Krstić, master

Nemanja Ćuk, master

Sanja Jovanović, master

Maja Šumaruna, master

## FERTILITY OF SPIKELETS PER SPIKE IN SMALL GRAINS

Milosav Grčak<sup>1</sup>, Dragan Grčak<sup>1</sup>, Desimir Knežević<sup>1</sup>, Radivoje Jevtić<sup>2</sup>, Vesna Župunski<sup>2</sup>, Branka Orbović<sup>2</sup>, Vesna Djurović<sup>3</sup>

<sup>1</sup>University of Pristina, temporary settled in Kosovska Mitrovica, Faculty of Agriculture, Lešak, Kopaonička bb, 38228 Lešak, Kosovo and Metohija, Serbia,

<sup>2</sup>Institute for Agriculture and Vegetables, Center for Small Grains - Institute of National Importance for the Republic of Serbia, Maksima Gorkog 30, 21000 Novi Sad, Serbia

<sup>3</sup>University of Kragujevac, Faculty of Agriculture, Čačak, Cara Dušana 34, 32000 Čačak, Serbia  
e-mail: [deskoa@ptt.rs](mailto:deskoa@ptt.rs)

Flower fertility plays a significant role in the formation and development of seeds and the formation of seed yield in small grains. The aim of the work is to study the variation of the fertility of spikelets/spike in different species of small grains grown in a single and mixture crop with peas. In the research, winter forms of wheat (Ili-na), triticale (Odisej), rye (Savo) and oats (Jadar) were studied in an independent crop and a mixture crop with peas on basic plots of 5 m<sup>2</sup> in four replications. The experiment was carried out on the experimental field of the Institute for Crop and Vegetable Farming, an Institute of national importance for the Republic of Serbia, at Rimski šančevi near Novi Sad during 2017/18 and 2018/19 growing season. The results showed that the number of fertile spikelets in spike was the lowest in the pure crop with wheat (19.47 and 16.97 fertile spikes) and the highest in mixture crop of rye (36, 63 and 41.40 number of fertile spikelets/spike) both in the first and in the second growing season. Number of fertile spikelets/spike<sup>-1</sup> in rye and oat was significantly higher in intercrops than in sole crop in both growing season, while in wheat and triticale was significantly higher in intercrops than in sole crop only in second vegetation season. In the studied types of small grains, the number of fertile ears in the ear was significantly different between the two growing seasons, except for wheat in the combined crop, which indicates that the genotype, sowing system, ecological conditions and the interaction between the genotype and the external environment determine the fertility value of the spikelets in the spike.

**Key words:** genotype, fertility, spikelets, ear, small grain

**VARIJABILNOST GENOTIPOVA KUKURUZA PREMA OŠTEĆENJU  
STABLA NAPADOM LARVI KUKURUZNOG PLAMENCA  
(*Ostrinia nubilalis* Hbn.)**

Dragan Grčak<sup>1</sup>, Desimir Knežević<sup>1</sup>, Milosav Grčak<sup>1</sup>, Snežana Gošić-Dondo<sup>2</sup>, Željko D. Popović<sup>3</sup>,  
Vanja Tatić<sup>3</sup>, Iva Uzelac<sup>3</sup>, Danijela Kondić<sup>4</sup>

<sup>1</sup>Univerzitet u Prištini sa privremenim sedištem u Kosovskoj Mitrovici, Poljoprivredni fakultet u  
Lešku, Kopaonička bb,38219 Lešak, Kosovo i Metohija, Srbija,

<sup>2</sup>Institut za kukuruz „Zemun Polje“, Slobodana Bajića 1, 11185 Beograd, Srbija

<sup>3</sup>Univerzitet u Novom Sadu, Prirodno-matematički fakultet, Trg Dositeja Obradovića 2, 21000  
Novi Sad, Srbija

<sup>4</sup>Univerzitet u Banjoj Luci, Fakultet poljoprivrede Banja Luka, Bulevar Vojvode Petra Bojovića,  
1A, 78000 Banja Luka, Republika Srpska, Bosna i Hercegovina  
e-mail: [deskoa@ptt.rs](mailto:deskoa@ptt.rs)

Kod biljaka kukuruza, kukurzni plamenac može naneti velika oštećenja, koja se mogu smanjiti primenom insekticida u zaštiti useva. Cilj istraživanja je da se utvrdi uticaj genotipa kukuruza i insekticida na ukupnu dužinu kanala u stablu nastalog ishranom larvi *Ostrinia nubilalis*. Istraživanje je sprovedeno u Institutu za kukuruz „Zemun Polje” na oglednom polju 2019. godine. U istraživanje su bila uključena tri genotipa kukuruza različitih FAO grupa zrenja (ZP 434, ZP 600 i ZP 666) i tri insekticida: hlorantraniliprol (200 g l-1), bifentrin (100 g l-1) i [lufenuron (50 g l-1)+(cipermetrin (50 g l-1) + hlorpirifos (500 g l-1)], koji su primenjeni 15 dana posle maksimalnog leta prve generacije u svrhu zaštite biljaka od napada kukuruznog plamenca. Rezultati su pokazali da postoje značajne razlike između genotipova kukuruza prema ukupnoj dužini kanala u stablu biljaka, koji su nastali ishranom larvi. Najmanja dužina kanala u stablu je nadjena na tretmanu sa insekticidom hlorantraniliprol kod genotipa kukuruza ZP 600 (181,0067 cm) a najveća na kontrolnoj varijanti (bez primene insekticida) kod istog genotipa kukuruza ZP 600 (316,67 cm). Za sve tretmane, prosečna vrednost ukupne dužine kanala u stablu je bila najmanja 230,00 cm kod ZP 434, nešto veća 241,25 cm kod ZP 600, dok je najveća prosečna vrednost ukupne dužine kanala iznosila 251,66 cm kod genotipa kukuruza ZP 666. Utvrđene razlike za ukupnu dužinu kanala zavisile su od genotipa i vrste primenjenog insekticida.

**Ključne reči:** dužina kanala, genotip, insekticid, kukuruz, štetočina

**III tematska oblast / Topic III**

---

**Savremeni trendovi u  
oplemenjivanju drveća,  
voćaka i vinove loze**

**Contemporary trends in the breeding of trees,  
fruit trees and vines**

## GENETIČKI DIVERZITET HRASTA KITNJAKA IZ JUGOISTOČNIH I SREDNJEVROPSKIH PROVENIJENCIJA

Vladan Popović<sup>1</sup>, Aleksandar Lučić<sup>1</sup>, Sanja Jovanović<sup>1</sup>, Ljubinko Rakonjac<sup>1</sup>

<sup>1</sup>Institut za šumarstvo, Kneza Višeslava 3, Beograd

e-mail: [vladanpop79@gmail.com](mailto:vladanpop79@gmail.com)

Hrast kitnjak (*Q. petraea*), je ekološki i ekonomski značajna listopadna šumska vrsta drveća u Evropi. Pretežno je rasprostranjen u zapadnoj, srednjoj i južnoj Evropi, uglavnom u brdskim i planinskim šumama. U kontekstu klimatskih promena, rasprostranjenost hrasta kitnjaka je pod pritiskom na zapadnoj i južnoj granici areala. Ali i u istočnoj i jugoistočnoj Evropi hrast kitnjak bi mogao da dostigne svoju klimatsku granicu, verovatno zbog sve jačih kontinentalnih klimatskih uslova. Hrast kitnjak imaju veliku genetičku varijabilnost u jugoistočnoj Evropi, gde su se primarne i sekundarne refugije nalazile tokom poslednje glacijacije. Međutim, adaptivna genetička varijabilnost populacija u ovom regionu je samo delimično istražena, iako bi bila veoma koristan alat za sprovođenje asistiranе migracije i za potencijalno *ex-situ* očuvanje ugroženih populacija. U okviru istraživanja testira se 65 jugoistočnih i srednjeevropskih provenijencija hrasta kitnjaka. U različitim ekološkim uslovima, u najmanje šest evropskih zemalja, je planirano uspostavljanje provenijeničnih testova. Istraživanje će obuhvatiti analize preživljavanja sadnica godinu dana nakon sadnje kao i preživljavanja sadnica i praćenje elemenata rasta tri, pet, deset i dvadeset godina nakon sadnje. Dodatno će se pratiti fenološke pojave tokom prolećnog i jesenjeg perioda vegetacije. Dobijeni podaci će poslužiti za razvoj različitih linearnih i mešovutih statističkih modela za odvajanje efekta porekla od drugih izvora varijabilnosti. Cilj istraživanja je bolje razumevanje adaptivnog genetičkog diverziteta hrasta kitnjaka u jugoistočnoj i srednjoj Evropi u odnosu na klimu porekla i očekivane buduće klimatske uslove.

**Ključne reči:** hrast kitnjak, adaptivni potencijal, klimatske promene, poreklo.

**Zahvalnica:** Ovaj rad je realizovan u okviru Ugovora o realizaciji i finansiranju naučnoistraživačkog rada NIO u 2023. godini, koje finansira Ministarstvo nauke, tehnološkog razvoja i inovacije Republike Srbije, br. 451-03-47/2023-01/200027.

## GENETIC DIVERSITY OF SESSILE OAK FROM SOUTHEASTERN AND CENTRAL EUROPEAN PROVENANCES

Vladan Popović<sup>1</sup>, Aleksandar Lučić<sup>1</sup>, Sanja Jovanović<sup>1</sup>, Ljubinko Rakonjac<sup>1</sup>

<sup>1</sup>Institute of Forestry, Kneza Višeslava 3, Beograd  
e-mail: [vladanpop79@gmail.com](mailto:vladanpop79@gmail.com)

Sessile oak (*Q. petraea*) is an ecologically and economically significant European deciduous forest tree species. It is mainly distributed in hilly and mountain forests of Western, Central, and Southern Europe. With climate change, the sessile oak distribution is under pressure in the Western and Southern distribution areas. Also, the sessile oak might reach its climate limit in Eastern and Southeastern Europe, probably due to increasing continental climate conditions. Sessile oak has high genetic variation in Southeastern Europe, where primary and secondary refugia were located during the last glaciation. However, the adaptive genetic variability of populations in this region is only partially researched, even though it would help conduct assisted migration schemes and potential ex-situ conservation of endangered populations. As part of the research, 65 Southeastern and Central European provenances of sessile oak will be tested. The provenance tests will be established in at least six European countries with various environmental conditions. The research will cover the analyses of seedling survival one year after planting and seedling survival and growth elements three, five, ten, and twenty years after planting. Additionally, phenological observations will be conducted during the spring and autumn growing seasons. The obtained data will develop various linear and mixed models to separate provenance effects from the other sources of variation. The research objective is a better understanding of the adaptive genetic diversity of sessile oak in Southeastern and Central Europe concerning the climate of provenance origin and expected future climate conditions.

**Key words:** Sessile oak, adaptive potential, climate change, origin.

**Acknowledgments:** This study was carried out under the Agreement on Realization and Funding of Scientific Research Activity of scientific research organizations in 2023, funded by the Ministry of Science, Technological Development, and Innovations of the Republic of Serbia. No. 451-03-47/2023-01/200027.