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

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

VRNJAČKA BANJA, 16.-18. OKTOBAR 2023.

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AND
VII SYMPOSIUM OF THE SERBIAN GENETIC SOCIETY
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PRIMENA RAZLIČITIH MIKROBIOLOŠKIH SOJEVA U GAJENJU INDUSTRIJSKOG BILJA

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U prethodnom periodu sprovedena su istraživanja sa fokusom na primenu različitih vrsta mikrobioloških preparata u cilju njihovog mogućeg uticaja na morfološke, produktivne i kvalitativne osobine gajenog industrijskog bilja. Istraživanja su sprovedena u periodu od 2015. do 2023. godine kako na otvorenom polju tako i u laboratorijskim uslovima. U grupi industrijskog bilja ispitivane su uljane, proteinske, lekovite, aromatične i začinske biljke. Rezultati istraživanja su publikovani kako u međunarodnim tako i u nacionalnim časopisima, na međunarodnim konferencijama i kao tehnička rešenja na nacionalnom nivou. Korišćene su odabrane mešane mikrobiološke kulture koje pripadaju rodu *Streptomyces* sp., *Paenybacillus* sp., *Bacillus* sp., i *Hymenobacter* sp. a koje su izolovane iz zemljišta i šumskih sedimenata. U radu su korišćeni sojevi: CKS1 – *Paenybacillus chitinolyticus*, CKS3 – *Hymenobacter* sp., CKS7 – *Streptomyces fulvissimus* za gajenje uljanog lana i crnog kima, a za tretman semena organske soje korišćena je mešavina sojeva *Bacillus subtilis*, *Bradrhizobium japonicum* i *Azotobacter chroococum*. Primena mikrobioloških sojeva pri gajenju značajno utiče na povećanje sadržaja proteina i biljnih ulja u soji, esencijalnih masnih kiselina u uljanom lanu i ulju semena crnog kima, naročito omega-3, kao i povećanje sadržaja ukupnih polifenola, flavonoida i karotenoida i antioksidativne aktivnosti u ekstraktu uljanih vrsta. Mikrobiološki preparati imaju potencijal da doprinesu razvoju održivih poljoprivrednih sistema. Upotreba odabranih mikrobioloških kultura za tretman tokom inokulacije zemljišta i semena pri gajenju industrijskog bilja, ogleda se u poboljšanju nutritivnih i funkcionalnih svojstava biljaka koje su odličan izvor vrednih sastojaka hrane.

Ključne reči: Mikrobiološki sojevi, tretman i klijavost semena, uljani lan, crni kim, soja.

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APPLICATION OF DIFFERENT MICROBIOLOGICAL STRAINS IN THE CULTIVATION OF INDUSTRIAL PLANTS

Snežana Dimitrijević[1], Vladimir Filipović[1], Marija Milić[2], Suzana Dimitrijević-Branković[2], Vladan Ugrenović[3], Aneta Buntić[3], Vojka Babić[4]

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In the previous period, research was conducted with a focus on the application of various types of microbiological preparations with the aim of their possible influence on the morphological, productive and qualitative properties of cultivated industrial plants. Research was conducted in the period from 2015 to 2023. years both in the open field and in laboratory conditions. In the group of industrial plants, oil, protein, medicinal, aromatic and spice plants were investigated. Research results have been published in international and national journals, also at international conferences and as technical solutions at the national level. Selected mixed microbiological cultures belonging to the genus *Streptomyces* sp., *Paenybacillus* sp., *Bacillus* sp., and *Hymenobacter* sp. were used. and which were isolated from soil and forest sediments. The following strains were used in the work: CKS1 - *Paenybacillus chitinolyticus*, CKS3 - *Hymenobacter* sp., CKS7 - *Streptomyces fulvissimus* for the cultivation of linseed and black cumin, and a mixture of strains of *Bacillus subtilis*, *Bradrhizobium japonicum* and *Azotobacter chroococum* was used for the treatment of organic soybean seeds. The application of microbiological strains during cultivation has a significant effect on increasing the content of proteins and vegetable oils in soybeans, essential fatty acids in linseed oil and black cumin seed oil, especially omega-3, as well as increasing the content of total polyphenols, flavonoids and carotenoids and antioxidant activity in oilseed species extract. Microbiological preparations have the potential to contribute to the development of sustainable agricultural systems. The use of selected microbiological cultures for treatment during soil and seed inoculation during the cultivation of industrial plants is reflected in the improvement of the nutritional and functional properties of plants, which are an excellent source of valuable food ingredients.

Key words: Microbiological strains, treatment and germination of seeds, linseed oil, black cumin, soybeans.

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