

Tehnologija uzgoja presadnica *Rosa canina* L. i *Pelargonium zonale* L. u kulturi tkiva i njihova adaptacija u različitim supstratima

The technology of growing *Rosa canina* L. and *Pelargonium zonale* L. seedlings in tissue culture and their adaptation in different substrates

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TEHNOLOGIJA UZGOJA PRESADNICA *Rosa canina* L. I *Pelargonium zona-* *le* L. U KULTURI TKIVA I NJIHOVA ADAPTACIJA U RAZLIČITIM SUPSTRATIMA

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Disertacija (2)

Cilj rada bio je utvrditi mogućnost dobivanja sadnoga materijala *Rosa canina* L. i *Pelargonium zonale* L. u kulturi tkiva te pogodnost alternativnih komponenti i njihovih mješavina kao supstrata za adaptaciju proizvedenih *in vitro* presadnica navedenih cvjetnih vrsta. U istraživanju analizirano je četiri alternativne komponente (ljuske od kakaovca (A), vrbina kora (B), supstrat nastao nakon proizvodnje šampinjona (C), piljevina (D)) te šest njihovih mješavina za uzgoj cvjetnih presadnica. Kao kontrolni supstrat analizirani su Klasman Potgrond P (za divlju ružu) (E) i Balkon – blumenerde (za pelargoniju) (F). Statističkom obradom podataka, utvrđene su značajne razlike između svih tretmana (supstrata) i njihovih analiziranih svojstava. Prosječan postotak adaptiranih presadnica u svim istraživanim supstratima iznosio je 54,68% za divlju ružu te 99,68% za pelargoniju. Najveće vrijednosti morfoloških pokazatelja divlje ruže utvrđene su na mješavini supstrata M2 (30% A + 20% B + 40% C + 10% D), gdje je zabilježen najveći broj izboja, broj listova, svježja nadzemna masa, ukupna svježja masa presadnice te odnos mase nadzemnoga dijela i korijena u svježem i suhome stanju. Kemijski sastav presadnica divlje ruže varirao je među tretmanima, no najviši sadržaj većine makro i mikroelemenata utvrđen je na presadnicama uzgajanim na supstratu od piljevine (D) te kontrolnome supstratu (E). Kod pelargonije, najveće vrijednosti gotovo svih morfoloških pokazatelja zabilježene su, također, na mješavinama supstrata M4 (18% A + 22% B + 40% C + 20% D) i M6 (18% A + 42% B + 20% C + 20% D). Nadalje, dok su najveće vrijednosti morfoloških pokazatelja utvrđene na presadnicama pelargonija uzgajanim na mješavinama, najviši sadržaj mikro i makroelemenata utvrđen je u presadnicama uzgajanim na alternativnim komponentama.

Gljučne riječi: kultura tkiva, *Rosa canina* L., *Pelargonium zonale* L., alternativni supstrati, adaptacija

THE TECHNOLOGY OF GROWING *Rosa canina* L. AND *Pelargonium zonale* L. SEEDLINGS IN TISSUE CULTURE AND THEIR ADAPTATION IN DIFFERENT SUBSTRATES

Doctoral thesis

The aim of this study was to establish the possibility of growing *Rosa canina* L. and *Pelargonium zonale* L. in tissue culture and suitability of alternative components and their mixtures as a substrate for adaptation of *in vitro* seedlings of these floral species.

In this research, four alternative components (cocoa shell (A), willow bark (B), spent mushroom substrate (C), sawdust (D)) and six of their mixtures were analysed. Klasman Potgrond P (for wild rose) and Balkon – blumenerde (for pelargonium) were analysed as a control substrate. Statistical analysis has revealed significant differences between all the treatments (substrates) and their analysed properties. An average percentage of adapted seedlings in all of the substrates was 54.68% for wild rose, and 99.68% for pelargonium. The largest values of morphological properties for the wild rose were determined on an M2 (30% A + 20% B + 40% C + 10% D) substrate mixture, where the greatest number of shoots, leaf number, fresh overground mass, total fresh mass of seedling and the ratio of fresh and dry overground mass and root were recorded. Chemical composition of wild rose seedlings varied among the treatments, but the highest content of macro and micro elements was determined in the seedlings grown on sawdust (D) and control substrate (E). The largest values of almost all morphological properties of pelargonium were also recorded on substrate mixtures M4 (18% A + 22% B + 40% C + 20% D) and M6 (18% A + 42% B + 20% C + 20% D). Furthermore, while the largest morphological properties of pelargonium seedlings were recorded in the mixtures, the highest content of macro and micro elements determined in the seedlings was on those grown on alternative components, especially in the seedlings grown on a willow bark substrate.

Key-words: tissue culture, *Rosa canina* L., *Pelargonium zonale* L., alternative substrates, adaptation

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