INFLUENCE OF NUTRIENT MEDIUM COMPOSITION, EXPLANT TYPE AND GENOTYPE ON CLONAL MICROPROPAGATION OF *MELISSA OFFICINALIS* L.

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Lemon balm (*Melissa officinalis L.*) is a promising medicinal, essential oil and spicy aromatic plant. Currently, breeding work is carried out to obtain high-oil cultivars because the content of essential oil in the raw materials of lemon balm is rather low. To increase the efficiency of breeding with this valuable plant, it is expedient to apply biotechnological methods, one of which is clonal micropropagation.

The aim of study was to investigate the influence of some factors (explant type, nutrient medium composition, genotype and type of culture bottle) on lemon balm clonal micropropagation. The results of the studies led to the optimization of the conditions of *M. officinalis* explants cultivation at the first, second and third stages of clonal micropropagation. The studies revealed that maximum number of shoots and their length for cultivar Sobornaya was on MS nutrient medium supplemented with BAP (1.0 mg/l) and GA (0.5 mg/l) and for cultivar Citronella - on MS nutrient medium supplemented with kinetin (0.5 mg/l) or BAP (1.0 mg/l) and GA (0.5 mg/l). It was found that morphometric parameters of microshoots development from stem segments with one node were 1.5-2 higher than from meristems.

At the second stage of micropropagation the nutrient medium supplemented with 0.5 ml/g BAP was optimum for lemon balm cultivars Sobornaya and Krymchanka (multiplication index were 19.9 and 17.6, respectively), and for cultivar Citronella – nutrient medium supplemented with 1.0 mg/l kinetin (multiplication index 19.3). As a culture vessel for the second stage of lemon balm micropropagation it is preferable to use glass jar (200 ml) closed with aluminium foil.

Maximum frequency of rooting for Citronella and Sobornaya cultivars was noted on nutrient medium supplemented with 0.5 mg/l NAA, number of roots in this case reached 10.1 pcs. and 13.6 pcs., respectively. For Krymchanka cultivar, the highest rooting parameters were revealed on a nutrient medium supplemented with 1.0 mg/l of IBA (number of roots was 8.7 pcs.).

Results of the study allowed to optimize of cultivation conditions for the major stages of propagation *in vitro* and are the basis for developing methods of *M. officinalis* clonal micropropagation.

Keywords**:** *Melissa officinalis* L., clonal micropropagation, explant, *in vitro*.

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