

***In vitro* Morphogenetic Potential of *Sedum* L. Representatives**

Olga V. ZUDOVA, Mikhail Yu. CHEREDNICHENKO

Department of Genetics, Biotechnology, Plant Breeding and Seed Science,
Russian Timiryazev State Agrarian University, Russian Federation
zudova94@gmail.com

Aim of the study: Representatives of the genus *Sedum* L. are important decorative, honey and medicinal plants. *Sedum selskianum* Regel & Maack and *Sedum lydium* Boiss are widely used in landscape design, including the creation of green roofs. Cultivation of these species *in vitro*, in contrast to traditional breeding in the field or in the greenhouse, allows obtaining genetically homogeneous and healthy material throughout the year, despite the environmental conditions. The aim of this study was to evaluate the morphogenetic potential *in vitro* of two species of the genus *Sedum*.

Material and Methods: The cuttings (with or without true leaves) of *S. lydium* and *S. selskianum* were treated with a 0.1% solution of mercury (II) chloride for 3 and 5 minutes. Then the plants were washed twice in sterile distilled water and placed on MS nutrient medium without phytohormones and growth regulators, as well as MS supplemented with 0.5 mg/l IAA or with 1...2 mg/l BAP. The resulting aseptic plants, after the formation of 3...4 nodes, were subjected to clonal micropropagation, placing the cuttings on the MS nutrient medium with the addition of IAA, NAA or IBA at a concentration of 0.5 mg/l. The influence of medium composition was studied. To characterize the morphogenic potential of the studied plants, explants (segments of true leaves, internodes and nodes) were placed on the MS nutrient medium with the addition of 2,4-D (1...2 mg/l); various combinations of substances of auxin's (IAA, NAA) and cytokinin's (BAP) nature; control (MS without phytohormones and growth regulators). To study the effect of pH, the cuttings were placed on the MS medium of different acidity level (pH 4...8) supplemented with 0.5 mg/l IAA. Dynamics of growth was taken into account.

Results: The best variant for introduction of the studied *Sedum* species into *in vitro* culture is the MS nutrient medium with the addition of 0.5 mg/l IAA or 2 mg/l BAP. *S. lydium* on the studied variants of nutrient media shows a lower growth rate than *S. selskianum*. *S. lydium* possesses a higher ability for callusogenesis than the second species. For the induction of stem organogenesis in *S. selskianum*, it is to recommend using internode segments as a primary explant, also nodal explants for *S. lydium*. *In vitro* cultivation of both species should use nutrient media with a pH-value in the range 4...6, which leads to an increase in shoots at a low contamination.

Keywords: *Sedum* spp., Crassulaceae, decorative plant, *in vitro* culture, morphogenetic potential.