



INFLUENCE OF PLANT GROWTH REGULATORS ON MULTIPLICATION OF RARE AND THREATEN MOSS *DREPANOCLODUS LYCOPODIODES* (AMBLYSTEGIACEAE) IN *IN VITRO* CONDITIONS

Növényi növekedés szabályozók hatása a ritka és veszélyeztetett *Drepanocladus lycopodioides* (Amblystegiaceae) lombosmoha szaporodására *in vitro* körülmények között

**Bojana Z. Jadrantin^{1*}, Beata Papp², Đorđe P. Božović¹, Marija V. Čosić¹
Aneta D. Sabovljević¹, Milorad M. Vujičić¹ & Marko S. Sabovljević^{1,3}**

¹Institute of Botany and Botanical garden "Jevremovac", Faculty of Biology, University of Belgrade, Takovska 43, 11000 Belgrade, Serbia; ²Department of Botany, Hungarian Natural History Museum, HU-1476 Budapest, Pf. 222, Hungary; ³Department of Botany, Institute of Biology and Ecology, Faculty of Science, Pavol Jozef Šafárik University in Košice, Mánesova 23, 040 01 Košice, Slovakia; *E-mail: bojana.jadrantin@bio.bg.ac.rs

Pleurocarpus moss *Drepanocladus lycopodioides* (Brid.) Warnst. is an European rare and vulnerable species usually inhabiting areas around water bodies, which are sites highly threaten due to anthropogenic influences, as well as climate change. Since the conservation and preservation of such species from extinction is crucial, one of the first steps is establishment of the axenic *in vitro* cultures and examination of the species biology features. Therefore, the main aim of this research was to obtain data for mass propagation in *in vitro* and laboratory conditions of *D. lycopodioides* and thus enable its potential successful reintroduction to the natural habitats. Experiments were carried out to study the influences of essential plant growth regulators, namely indole-3-butyric acid (IBA) and 6-benzylamino purine (BAP) on moss growth and development. The moss explants were grown on minimal KNOP medium supplemented with exogenously added IBA and BAP (both 0.03, 0.3 and 3 mM and control without growth regulators) for 4 and 6 weeks. After the experiment, morphogenetic parameters such as survival and index of multiplication i.e. appearance of newly developed shoots (IM) measured. All explants survived the treatment with IBA and BAP. However, growth regulators inhibited the formation of new shoots (IM) and development of secondary protonema, which was invisible. Since the IM was the highest in the control group, it could be inferred that using the minimal KNOP medium is the most suitable method of mass propagation in culture *in vitro* for *D. lycopodioides*. In addition to the results obtained for mass propagation, interesting data related to the development of sexual organs of the selected species were also documented. Considering that *D. lycopodioides* is a dioecious species and that the production of sexual organs is extremely rare, the occurrence of archegonia in plants grown on media supplemented with 3 mM BAP indicated the possible methodology for sexual reproduction of this species *in vitro*. This research highly contributes to conservation and multiplication of *D. lycopodioides* and proposed elegant method for preventing the extinction of this species from its natural habitats.