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**COMPARATIVE STUDY OF THE EFFECTS OF PLANT GROWTH REGULATORS AND ACTIVATED CHARCOAL ON THE DEVELOPMENTAL PATTERNS OF *SIDERITIS SCARDICA* *IN VITRO* CULTURES**

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The Balkan endemic *Sideritis scardica* is traditionally utilized as a pulmonary treatment, as well as anti-flu and wound healing remedy. The low germination rate and collection pressure imposes significant risk on its natural populations. In a broader program for plant cell tissue and organ culture collection establishment at the Institute of Organic Chemistry with Centre of Phytochemistry, shoot cultures of the species were initiated from surface sterilization of seeds of the plant, collected at peak Shabran in Slavianka mountain. Then, an array of plant growth regulators (PGRs) modifications, comprising of benzyl adenine (BA) and 1-naphthylacetic acid (NAA) treatments, as well as different activated charcoal (AC) concentrations were applied. Their impact on developmental patterns and polyphenolics production were studied *in vitro*. As a general observation all treatments increased significantly the survival rate of explants, as well as the multiplication index and polyphenolics productions as compared with the non-treated control. A significant rise of FW accumulation was also recorded (much higher in PGR treatments, as compared with AC). The AC treatment was also observed to stimulate polyphenolics production and increase sub-culture period, thus improving explant quality to a higher extent as compared with PGR. Further investigations are in process to study in details the phytochemical profiles of the different treatments and scale-up the obtained processes to higher volume bioreactor system.

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