

Drought stress and recovery effects on morpho-physiological and biochemical responses in *Impatiens walleriana* grown *ex vitro*

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Impatiens walleriana (Balsaminaceae) is a worldwide popular horticultural plant and commercially produced in Serbia for many years. Plants have high requirements for the presence of water in the substrate, which deficiency leads to a rapid drop in the cells turgor pressure and tissue dehydration. This is the main problem in commercial production of these plants, especially during transport and sale process when plants are not always sufficiently supplied with water. We assessed the drought and recovery effect on growth, physiological and biochemical parameters in *I. walleriana* (Xtreme Scarlet) grown in chamber under controlled physical conditions (*ex vitro*). Plants were 74 days old when the drought stress was imposed. We examined: control plants – grown under optimal watering (37%-40% of soil moisture content), drought stressed plants – (25%, 15%, 10% and 5% of soil moisture content), and *recovery* plants – rehydrated for four days to reach optimum soil moisture content (37%-40%). Drought reduces fresh (FW) and dry weight (DW) of shoots, as well as total leaf area and shoots water potential. Drought significantly increased abscisic acid (ABA) content in the leaves in order to reduce transpiration rate and preserve water in it's tissue. The concentration of hydrogen peroxide (H₂O₂) and malondialdehyde (MDA) were increased in drought-stressed plants, as a consequence of drought induced oxidative stress in the plant cells. The activity of antioxidant enzymes (superoxide dismutase - SOD, peroxidase - POX and catalase - CAT) contributed to neutralizing negative effects of oxidative stress on plant growth, while the different SOD and POX isoforms were detected on gel. *Recovery* treatment neutralised negative effect of drought on growth, physiological and biochemical parameters analysed in *I. walleriana* to a certain extent.