

ABSTRACT

INVESTIGATION OF THE IMPACT OF HEAVY METALS (COPPER AND LEAD) ON THE PHOTOSYNTHETIC PIGMENT CONTENT AND ANTIOXIDANT MECHANISM OF TWO DIFFERENT BRYOPHYTE SPECIES

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In this study, short term reactions caused by heavy metal administration was evaluated in light of physiological and biochemical parameters on types of *Homalothecium sericeum* (Hedw.) Schimp. which belongs family of Brachytheciaceae and *Hypnum cupressiforme* Hedw. which belongs family of Hypnaceae. The plants collected in the field work has been brought to the laboratory on the appropriate bag. After appropriate treatment of the washing operation bryophyte species prepared media were cultured in solutions containing Cu and Pb. Heavy metal deposition levels, dry weight, photosynthetic pigments analysis, hydrogen peroxide (H₂O₂) content determination, lipid peroxidation and antioxidant enzymes (superoxide dismutase, catalase, peroxidase, ascorbate peroxidase) non –enzymatic antioxidant molecules (ascorbate and proline) quantity were studied for the types of bryophyte. Both type of the metal structure are exposed is determined that accumulate in specific proportions. Activity of superoxide dismutase and peroxidase has been increased in spite of there is no significant change was not seen ascorbate values on Cu applied samples of *Hypnum cupressiforme* as the cause of the decrease in the catalase enzyme activity such as catalase activity is from stopping act by plants inhibitors of non-heavy metal ions such as copper cations. Pb applied samples of *Homalothecium sericeum*, The absence of H₂O₂ accumulation of ascorbate peroxidase and catalase activities effect on pigment degradation and H₂O₂ detoxification or this metals can be indicator of oxidative damages that will cause excessive stress on cells.

Key Words: *Homalothecium sericeum*, *Hypnum cupressiforme*, heavy metal, stress, antioxidant