

Abstract

The evaluation of heavy metal's concentrations, especially nickel and zinc is important on soil and plant systems, because of the effect of these materials on the food chain and the health of creatures. The current research was carried out as factorial in a completely randomized design with three replications in 2016. The treatments of experiment are consisted of three levels of nickel (0, 3 and 6 mg/kg of soil from nickel sulfate source) and zinc at three levels (0, 50 and 100 mg/kg soil from zinc sulfate source) and super-adsorbent polymer in three levels (0, 55 and 110 g/kg of soil). The results of this research showed that increasing of the concentration of heavy metals of nickel and zinc had a negative effect on the amount of physiological characteristics of the plant. Statistical analysis showed that different sources and quantities of the Super-absorbent, Ni and Zn, had a significant effect on chlorophyll content, membrane stability, carbohydrate and carotenoid. Of leafs Generally the result showed *Hypericum perforatum* had a high potential for phytoremediation of soils that contaminated by heavy metals such as nickel and zinc.

Keywords: Super absorbent, Heavy metals, *Hypericum perforatum*, phytoremediation



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**The Thesis Submitted for the Degree of Master of Science
(In the Field of Medicina Plants)**

**Effect of Nano super absorbent on phytoremediation of Hypericum
contaminated soils with nickel and zinc**

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September 2017