

## ABSTRACT

One of the most dangerous contaminants in water bodies that threatens aquatic life is heavy metal, such as chromium (Cr). In a similar vein, lithium (Li) is another newly discovered contaminant in soil and water that plants eventually absorb. The current study's objective is to assess *Pistia stratiotes* potential for the elimination of both Li and Cr. It was also established how lithium and chromium affected growth and other factors. A variety of characteristics were measured, including height, fresh weight, and the length of the roots and leaves. How quickly the roots and leaves of *P. stratiotes* removed Cr and Li was assessed. Additionally, estimates of the TF (translocation factor) and BAF (bioaccumulation factor) were made. The concentration of 2mg/l, 4mg/l, 6mg/l, and 8 mg/l of Cr and 10mg/l, 20mg/l, 30mg/l, and 40 mg/l of Li was added to the tap water along with the following: concentrations of Cr with concentrations of Li in different 16 combinations. Plant samples were examined in order to eliminate Cr and Li. The findings indicated that for 2mg/l of Cr *P. stratiotes* removed 46% , for 4, 6, and 8 ppm of Cr it eliminated, 48.75, 51, and 51.3% during the 1<sup>st</sup> harvest, while during the 2<sup>nd</sup> and 3<sup>rd</sup> harvests, 79, 79.75, 79.6, 80.5%, and 84.5%, 85.25%, 85.5%, and 85.6 % were removed. *P. stratiotes* removed 47.6, 51.55, 46.43, and 51.8% of Li for 10, 20, 30, and 40 mg/l during the 1<sup>st</sup> harvest, but removed 75.2, 73.45, 74.66, 74.99%, and 77.9, 75.25, 76.77, and 77% of Li during the 2<sup>nd</sup> and 3<sup>rd</sup> harvests, respectively. *Pistia stratiotes* was able to remove a significantly higher amounts of Chromium than Lithium in the Cr+Li mixture. Compared to the leaves, the roots of *P. stratiotes* accumulated greater doses of both metals. *P. stratiotes* efficiently absorbed the metals in the roots as opposed to the foliage part, according to BAF for Cr and Li. Statistical analysis was performed using SPSS 16 single factor ANOVA function. Considerable amounts of Cr and Li were eliminated by *P. stratiotes*, according to statistical analysis ( $p \leq 0.05$ ). Therefore, this research indicates that *P. stratiotes* is capable of efficiently eliminating Cr and Li. *P. stratiotes* has the ability to eliminate elevated levels of Cr and Li. Because this technology is affordable and environmentally friendly, it may be used to clean up the environment.