

Biosorption of Cd (II) from water by *Moringa oleifera* Leaves

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Keywords: biosorption, Cadmium (II), heavy metals, *Moringa oleifera*, water treatment.

Abstract. Cadmium is one of the most toxic metals affecting man, animals, and plants. It is considered one of the “priority pollutants”, its excretion from the body is very low, and it has synergistic toxicity with other metals. Therefore, cadmium from surface water and wastewater where the cadmium level is high must be treated. This work was done to study the biosorption of Cd(II) from water using *Moringa oleifera* leaves, as a natural, low cost biosorbent, and environmentally friendly without any modification. The dosage and the particle size of the natural biosorbent were studied as well as the concentration of Cd(II), and pH. The synthetic water with initial turbidity of 200 NTU was used and the Cd(II) concentration was 1ppm, and 3ppm. Different dosages of *Moringa oleifera* leaves powder of (0.10 to 10 g/L) were added with different particle size of *Moringa oleifera* leaves (<125, <250, <500, and >500 μm) at room temperature. The AAS was used to measure the residual Cd(II) in the supernatant after treatment with *Moringa oleifera* leaves powder. It was observed that the removal of Cd(II) was increased by increasing the natural biosorbent dosage, while the particle size and the pH has no effect on the removal efficiency. Therefore, it is concluded that the *Moringa oleifera* leaves powder can be used as a natural biosorbent without any chemical modification and can be used directly after grinding without sieving to different sizes. The best removal of 1ppm, and 3ppm Cd(II) was at dosage of 8g/L, and 10g/L from fresh grinded leaves, respectively.