

## Conference Abstract

**Adsorption of Cadmium ion from aqueous solutions by stem and leaf of *Parthenium hysterophorus***

Elilan Yogenthiran\* and Poobalasingam Abiman

Department of Chemistry, University of Jaffna, Jaffna, Jaffna 40000, Sri Lanka

\*ryelil1994@gmail.com

**Abstract**

Cadmium is a toxic heavy metal causing risks for living organisms even at low levels of its presence. Poor treatment of  $\text{Cd}^{2+}$  from contaminated sources leads to high risks for human health causing health disorders like rheumatoid arthritis, kidney failure and allergies [1]. *Parthenium hysterophorus* is a non-living biomass of low cost, environment friendly bio sorbent and can be considered as a very effective adsorbent for the removal of heavy metals like Cd. Studies have been carried out on activated carbon prepared from parthenium for elimination of Cd and Ni from contaminated wastewater [2]. In this report we use dried plant parts of *Parthenium hysterophorus* as an adsorbent for the removal of  $\text{Cd}^{2+}$  ions from aqueous solution. The extent of adsorption of  $\text{Cd}^{2+}$  ions by stem and leaf parts of the *Parthenium hysterophorus* is analyzed by using acid and base activation, weight variation and concentration variation. Anodic Stripping Voltammetry (ASV) via standard addition technique was used in the quantitative determination of  $\text{Cd}^{2+}$  samples.

Results show that the percentage adsorption of the  $\text{Cd}^{2+}$  ranges from 41.31 to 99.59. Different operational parameters observed during the process of investigation reveal that the adsorbent dosage, initial adsorbate concentration, activated adsorbent dosage govern the overall process of adsorption. The effective concentration of  $\text{Cd}^{2+}$  ion and the optimum dosage of *Parthenium hysterophorus* were calculated as 100  $\mu\text{M}$  and 50 mg of acid activated leaf powder respectively. This results suggest that *Parthenium hysterophorus* can be used effectively to remove  $\text{Cd}^{2+}$  ions from wastewater.

**Keywords:** Heavy metal toxicity, Wastewater treatment, *Parthenium hysterophorus*

**References**

- [1] Ahmad, J. et al., BioMed Res. Int., 2018, 9535232
- [2] Kumari, A. and Kohli, R., Weed Sci., 1987. **35** (5), 629-632