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Evaluating the Adsorption Capacity of Heavy Metals by Hemp (*Cannabis sativa* L.)

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Hemp (*Cannabis sativa* L.) was used to examine its capability as a renewable resource to decontaminate heavy metals. Determination of heavy metal content was carried out by means of atomic absorption spectroscopy (AAS). The goal of this research was to evaluate the attenuation capacity of hemp. The results revealed heavy metals accumulation; cadmium and chromium in hemp. The analysis consisted of comparing linear, Langmuir and Freundlich isotherms. Langmuir isotherm resulted in the highest distribution coefficient (K_d) values of 5.6 L/g for Soil to Solution ratio of 1:10. Column testing results revealed that the concentrations of cadmium dropped from 1.0 to 0.3 mg/L within the first pore volume and by 15 pore volumes the concentration was close to zero mg/L. This indicated that hemp proved to be an effective adsorbent for the removal of cadmium ions in water.

Biography

Dr. Gautham Das is an Associate Professor in Wentworth Institute of Technology. Professor Das has 15 years of research and professional experience in the field of soil and water remediation. Philip Curtsmith is a research associate at Wentworth Institute of Technology since 2015. Katherine Asciutto, Samantha DeVincentis and Audrey Iodice are research assistants at Wentworth Institute of Technology. They are obtaining their Bachelor of Science in Civil Engineering and minoring in Environmental Engineering.

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