the formation of the ligand and complex and provided distinct evidence of the deprotonation of the amine group in ethylenediamine upon coordination to metal in complex C1. Results of the *in silico* analysis of physico-chemical and pharmokinetic parameters as well as drug-likeliness of the ethylenediamine sulphonamide ligands show that they obey Lipinski's rule of five along with having lead-likeliness. Swiss TargetPrediction was used to identify several probable biological targets, suggesting that the novel compounds may act as lead compounds for novel anti-cancer drugs.

Keywords: platinum, ethylenediamine, diethylenetriamine

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Invasive plant-derived biochar for sorptive removal of hexavalent chromium in aqueous media

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Due to increased industrialization and urbanization, chromium (Cr) has been commonly used and released to the environment in a variety of industrial activities. Two primarily available valence states of chromium in the environment are trivalent chromium (Cr III) and hexavalent chromium (Cr VI). Cr(VI) is more soluble in water, causing health hazards to human beings and animals by all exposure roots. The rapid spread of invasive plants poses a severe threat to natural ecosystems. The present study aimed to investigate the effectiveness of biochars derived from the local invasive plant 'Giant Mimosa' (*Mimosa pigra*) in removing hexavalent chromium from contaminated water. In this study, plant species *Mimosa pigra* was subjected to slow pyrolysis at 350 °C within a 2-hour residence time to produce pristine *Mimosa pigra* biochar (MPBC). The physicochemical properties of MPBC were characterized by BET, SEM, XRD and FTIR analysis. The pH at point of zero charge (pHpzc) of MPBC was obtained as pH 7.874 by surface titrations at different $NaNO_3$ ionic strengths. Cr(VI) adsorption was studied as a function of pH with three different background electrolyte strengths. The highest Cr(VI) removal from solution occurred at pH 3 with an adsorption capacity of 3.10 mg g^{-1}, and adsorption decreased when the pH increased from 3 to 10. Results also indicated that the removal of Cr(VI) by the MPBC modified biochar depended on solution pH, and a low pH value was favorable for the Cr(VI) removal with all three ionic strengths. The results herein revealed that the *Mimosa pigra* derived biochar prepared in this study has a promising application in sorption and detoxification of Cr(VI) from an aqueous solution. Future studies will be carried out to investigate the sorption kinetic behaviors of MPBC and sorption parameters will also be calculated through batch isotherm experiments. Furthermore, pilot-scale testing will be conducted to investigate the applicability of the laboratory-tested material in the actual environment. The effectiveness of organo-functionalized biochars derived from *M. pigra* in removing hexavalent chromium from contaminated water will be assessed in future studies.

Keywords: Adsorption, Remediation, Invasive plants, *Mimosa pigra*