

Abstract

The immense progress being made day by day in manufacturing, farming, medicine and other fields has led to huge deleterious impacts on our environs and one of that is increasing pollution particularly water pollution. The main roots of pollution are heavy metal ions, persistent organic pollutants, extensively used dyes and remnants of antibiotics. Usage of agrarian waste, domestic leftover, forestry products, livestock dung, poultry litter and manure for formation of carbonaceous material, biochar is drawing allure globally and being used as bio sorbent for metal ions, perilous contaminants, dilapidation of dyes, antibiotics, and nourisher for soil. Heavy metals including chromium, nickel, mercury, cadmium, arsenic, copper, and lead are extremely noxious when existing beyond the edges. Among this chromium is first carcinogenic and fifth potentially toxic element. This research work aims to provide insight into effect of biochar based Ni/Fe bimetallic nanocomposites for adsorptive elimination of heavy metal ions and degradation of organic dyes. Physical adsorption, chemical interactions (precipitation, co-precipitation, and complex formation), ion-exchange and electrostatic forces between contaminants and surface of biochar are accountable for exclusion. It was studied that biochar based Ni/Fe bimetallic nanocomposite is highly effective for degradation of methylene blue even in small quantity.