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The conference is aimed at dissemination of scientific research results, sharing of experience, improvement of foreign language and cross-cultural communication skills, and establishing of international contacts.

REMOVAL OF NICKEL USING FE_3O_4 IMPREGNATED ONTO SUGAR BEET PULP FROM AQUATIC ENVIRONMENTS

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Industrial wastewaters which contain heavy metals are one of the most serious environmental problems. Adsorption has preferable properties compared to other conventional treatment techniques due to the operating and design facilities in heavy metal removal from water and wastewater. However, low-cost adsorbent materials should be used in order to be economical. The use of industrial wastes in the adsorption process provides both a solution to the problem of the removal of wastes and a reuse method for the use of wastes as a low-cost adsorbent for a useful purpose. Therefore, it has two advantages: There is a need to investigate the feasibility of investigating all possible industry-based cheap adsorbent sources as well as the removal of heavy metals to produce a reliable and harmless adsorbent. A large number of industrial low-cost and environmentally suitable adsorbents such as tea waste, waste of leather factory, waste of olive oil products, newspaper dough, battery industry waste [1., 3.] are used for heavy metal removal from aqueous solutions. In recent years, the usage of adsorbent materials with magnetic properties due to their surface properties and enable easy separation from the solution, increases in the removal of different pollutants from water and wastewaters.

In this study, the magnetic composites material was synthesized with Fe_3O_4 impregnated to sugar beet pulp using chemical precipitation techniques based on the methods described by Panneerselvam et.al. (2011). Nickel removal performance of magnetic nanoparticles was investigated under different environmental conditions such as contact time, adsorbent dose, pH, initial heavy metal concentration, etc. The experimental studies showed that the maximum adsorption capacity of material was achieved as 9.36 mg/g for aqueous solution containing 25 mg/L initial nickel concentration at 40-minute contact time, 200 rpm shaking speed, 5 g/L nanoparticle dose and pH 6.6 (original pH). Freundlich and Langmuir isotherm experiments were performed, and correlation coefficients were determined as 94.5% and 99.4%, respectively. Nanoparticle characterization was illuminated with XRD, SEM/EDX analysis.

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This study is derived from the first author's MSc Thesis.

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