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Elaboration and characterization of an activated carbon from diss and esparto grass for the wastewater treatment

Azzaz Mohammed
University of Sciences and Technology Houari Boumediene, Algeria

This work provides opportunities to develop cost-effective activated carbons from Stipa Tenacissima (Esparto or Alfa is the Arab name for esparto) and diss (Ampelodesmos mauritanicus). Activated carbons are produced from a variety of carbonaceous source materials. Due to economical reasons, it was investigated for a long time that waste materials used for the production of activated carbon. The aim of the present study was to prepare activated carbon from diss and esparto grass fibres or Alfa under vacuum condition with chemical activation method using zinc chloride ($ZnCl_2$) as activating agent. Published studies show that lignin can be a good adsorbent. Activated carbon was widely used in removal dyes from textile effluent, which had relatively high adsorption capacity for a wide variety of dyes. We note that few scientific investigations could be found on the preparation of activated carbons from diss and esparto grass under vacuum condition. Effects on adsorption capacities of activated carbon were evaluated in this work. The specific surface area (SBET) and pore size distribution were calculated by the BET and BJH methods, respectively. The ACs was analyzed by using several techniques: SEM, EDX, FTIR and X-ray diffraction The BET surface areas are 953m^2/g and 754m^2/g, respectively for esparto and diss. The pore distribution could be tailored in the range of 1.3-2.7nm. The prepared materials could be advantageous for some applications such as separation.

Biography

Azzaz Mohammed has completed his Ph.D. at the age of 30 years from Nancy University (France). He is a Director of the Laboratory of Sciences and Material Engineering (Algiers University). He works in the following specialities : material properties and Alloys synthesized by mechanical alloying process. The researches works are developed by around fifty publications and international communications. He was also a supervisor of about fifty Engineers, Masters and Doctorates.

mazzaz@usthb.dz