

HYDROCARBONS REMOVAL FROM WASTEWATER BY ADSORPTION ONTO BIOCHAR FROM *POSIDONIA OCEANICA*

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Environmental pollution by petroleum derivatives is a very current topic. In particular, low concentration of this kind of pollutants can seriously compromise the life of animals and plants of aquatic ecosystems [1]. For this reason, recent environmental legislation imposes severe restriction to oil-in-water content for overboard discharge with concentration limits from 15 to 5 ppm [2]. The shipping industry is trying to adapt to these directives by equipping ships with cleaning treatment devices in which there are several oil removal steps.

Usually, the last step of bilge water treatment is based on adsorption onto suitable adsorbent materials that must be able to remove the last and most dispersed oil fraction reducing its concentration within legal limits.

In this work, a biochar obtained from pyrolysis of *Posidonia oceanica*, a Mediterranean sea plant, has been tested as adsorbent material of a synthetic bilge water. The pristine biochar (BCP) was tested as it was and after two chemical activation treatments with sulfuric acid (BCA) and potassium hydroxide (BCB). The adsorbent materials have been characterized by using different techniques (TGA, SEM-EDAX, FT-IR, etc) and their adsorption capacity was studied by batch and column experiments. Oil concentration measurements were performed by using: HPLC-FLD and TOC techniques.

Bibliografia

¹ L. Yu, M. Han, F. He, A review of treating oily wastewater, Arab. J. Chem. 10 (2017) S1913–S1922. doi:10.1016/j.arabjc.2013.07.020.

² MEPC.107(49). Annex 13. Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships resolution (2003).