

New Environmentally Friendly Material for the Purification of the Fresh Water from Oil Pollution

Authors : M. A. Ashour

Abstract : As it is known Egypt is one of the countries having oldest sugarcane industry, which goes back to the year 710 AD. Cane plantations are the main agricultural product in five governorates in Upper Egypt (El-Menia, Sohag, Qena, Luxor, and Aswan), producing not less than 16 million tons a year. Eight factories (Abou-korkas, Gena, Nagaa-Hamadi, Deshna, Kous, Armant, Edfuo, and Komombo), located in such upper Egypt governorates generates huge amount of wastes during the manufacturing stage, the so called bagasse which is the fibrous, and cellulosic materials remaining after the era of the sugarcane and the juice extraction, presents about 30% of such wastes. The amount of bagasse generated yearly through the manufacturing stage of the above mentioned 8 factories is approximately about 2.8 million tons, getting rid safely of such huge amount, presents a serious environmental problem. Storage of that material openly in the so hot climate in upper Egypt, may cause its self-ignition under air temperature reaches 50 degrees centigrade in summer, due to the remained residual content of sugar. At the same time preparing places for safely storage for such amount is very expensive with respect to the valueless of it. So the best way for getting rid of bagasse is converting it into an added value environmentally friendly material, especially till now the utilization of it is so limited. Since oil pollution became a serious concern, the issue of environmental cleaning arises. With the structure of sugarcane bagasse, which contains fiber and high content of carbon, it can be an adsorbent to adsorb the oil contamination from the water. The present study is a trail to introduce a new material for the purification of water systems to score two goals at once, the first is getting rid of that harmful waste safely, the second is converting it to a commercial valuable material for cleaning, and purifying the water from oil spills, and petroleum pollution. Introduced the new material proved very good performance, and higher efficiency than other similar materials available in the local market, in both closed and open systems. The introduced modified material can absorb 10 times its weight of oil, while don't absorb any water.

Keywords : environment, water resources, agricultural wastes, oil pollution control, sugarcane

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020