

Rice Husk as a Low Cost Sorbent for the Removal of Metal Pollutants from Industrial Effluents: A Review

Manjeet Bansal and Diwan Singh

Department of Civil Engineering
National Institute of Technology, Kurukshetra - 136 119, Haryana, INDIA
E-mail: push_kar5@yahoo.com

ABSTRACT

Rapid industrialization and tremendous increase in the use of heavy metals over the past few decades has inevitably resulted in an increased flux of metallic substances in the environment. The metals are of special concern because they are non-degradable and, therefore, persistent. In the recent years, increasing awareness of the environmental impact of heavy metals has prompted a demand for the purification of industrial wastewaters prior to discharge into natural water bodies. This effect is likely to be even more pronounced for small and medium scale industries where profit is small and expertise on wastewater treatment is unlikely to be available. Disposal of sludge generated by the most commonly adopted chemical precipitation process is an additional problem. Therefore the need of alternative low cost sorbents such as rice husk has encouraged the search for new and cheap sorption processes for aqueous effluent treatment as these materials could reduce significantly the wastewater treatment cost.

Rice husk is a low value agriculture by-product abundantly available in India. In recent years, it has been widely investigated as a biosorbent for removal of heavy metals such as Au, Cd(II), Cr(VI), Cu(II), Ni(II), Pb(II), Zn(II) etc. from water and wastewater. In this review an extensive list of previous and current literature on rice husk in removing heavy metals has been compiled to provide a summary of available information on rice husk and its potential as a low cost biosorbent.