AIM, SCOPE AND OBJECTIVE OF THE PRESENT WORK

The aim of this research work was to evaluate the efficiency of locally available activated carbon to adsorb heavy metal ions /dye from an aqueous solution as alternative to existing commercial adsorbents.

SPECIFIC OBJECTIVES

The specific objectives of this research work are

To find very effective methodology/technique to treat liquid hazardous wastes.

To possibly develop new market/areas of application for newly prepared activated carbon in India and other neighbouring countries.

To find the cost effective naturally available adsorbent.

To find the hazardous free and re-useful adsorbent

SCOPE OF THE PRESENT WORK

A number of adsorption materials have found to remove the toxic heavy metal ions /dyes and hence they employed in water treatment processes. These materials function through the adsorption, ion exchange precipitation, electro chemical, hydrolytic and oxidation reactions. Each of these has its own limitations too. Of the several mechanisms mentioned, adsorption seems to be the one, which has been the most favored due to its simplicity, high success rate, time factor and reliability.

A large number of materials have reported to trap metal ions through physisorption by many scientific workers. Several factors like residual toxicity slow
pace of the process, cost factor, no availability, and rational loss cause serious set
back in their suitability as agreed adsorbents.

This investigation aims at the identification of suitable naturally available
plants capable of meeting above criteria. Few materials which are biodegradable,
cheap, indigenous, easy and safe to handle and redeemable were examined for their
ability to reduce metal ion pollution through either by physisorption or
chemisorption.

Naturally available plant materials and their acid activated carbon have found
to possess excellent adsorption ability and meet the above requirements
satisfactorily. Besides the appreciable adsorption capacity the carbons are found to
be non-toxic, abundant, eco-friendly and adaptable to laboratory conditions.In this
background, it was decided to investigate the approachability of the important
indigenous naturally available plant activated carbon reduce the concentration of
metal ions/dyes

Investigations to define the role of factors like, dosage, contact time, pH,
concentration, temperature on the sorption ability, dynamics of equilibrium, nature
of adsorption and effect of co-ions were included in the scope of this work.

The main objective of this investigation is to establish the suitable conditions
for the best sorptive capacity of the removal of the metal ions/dyes