

Removal of mercury from industrial waste water using low absorbent charcoal (black babul shell)

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Abstract

Pollution is occurring in the way like water pollution, air pollution, land pollution etc. This pollution occurs due to human activities like, industrialization, burning of fossil fuels, mining, Agricultural, activities.

As we know that, industrial wastages relies into water bodies like river, lake, and ocean without any proper treatment. This industrial waste is in the form of liquid, solid, waste, heavy metals Like mercury, Cr, Zn,Cu,On, Cd.It causes serious water, pollution and effect of aquatic plants and animals .It causes skin problems, immunity problem, Damage, News, System, Lung Cancer, Diabetes, Anemia and Respiratory Problem etc. Mixed with water, heavy toxic methods in this which is harmful to living organism. It also affects the soil fertility. So, that we have decided to work on this series problem and decided to work recycle this industrial waste water by using natural agricultural waste. Babhul shell, Coconut shell and wood appleshell is an agriculture solid waste, was chemically treated and used for the adsorption of heavy metals from aqueous solution.

Heavy metalbecomes a serious problem to society in the view of water pollution. The conc.of heavy metal increase mainly due to the activities like mining, agricultural waste products.Separation of this heavy metal from water many treatments are available for the removal of heavy metals from waste water. Adsorption process is being widely used by various reaseachers for the removal of heavy metals from waste water. Activated Carbon has been frequently used as an adsorbent.

Keywords: Pollution, Mercury, Adsorption, Activated Carbon

Introduction

Pollution becomes one major problem facing by the world. It is increasing day to day and the quality of environment become degrading. Pollution is occurring in way like water pollution ,air pollution and land pollution etc. This pollution mainly occur due to human activities Metal Refining, Refining ores, Paints and Pigments, tanneries etc. Industries wastages

release into water bodies like river, lake and ocean without any proper treatment

Materials and Method

Chemicals - Standard mercury Solution, Deionized water, solutions used for activation of charcoal (2 N NaOH soln., 2N HCLsoln.)

Method –

1. First we collect the industrial waste water.
2. This water is also stock standard solution.
3. We make column to use charcoal as the charcoal as the stationary phase and industrial waste water as mobile phase.
4. We use the atomic absorption spectrophotometer and calibrate the set.
5. Calibration Curve Method
6. Prepare 2 ml stock solutions of 20,40,60,80,100 ppm solution of Mercury from standard solution.
7. Switch on AAS instruments, Air - conditioner, fan

Result

Removal to toxic metal ion was found 99.9%

Conclusion

Heavy metal ions are toxic to living organism. Removal of toxic metal ion from aqueous medium is achieved by several techniques include precipitation, ion exchange, solvent extraction, membrane separation, and adsorption. Adsorption is most eco-friendly and commercial technique. Agricultural waste can be used as raw materials for the charcoal synthesis. The charcoal used as adsorbent is recycled safely disposed.

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Outcomes

Industrial polluted water will be purified by passing through activated charcoal of black Babul shell, Coconut shell, Wood Apple shell.

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Figure

