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Project Title

Removal of copper from aqueous environment using a novel soyhulls based biosorbent and to study its equilibrium isotherm and kinetics.

Objective

Removing Copper particles from industrial used water by using soyhull.

Method

For removing copper particles from water body they made beads of soyhull mixed with sodium alginate. With the help of this we can remove considerable amount of copper particles from water.

For preparing this beads soyhull is grounded at the size of 1 mm grain. This grounded soyhull is mixed with sodium alginate. After many trials they have found optimum mixture ratio for maximum absorption of copper from water body. 9% soyhull is mixed with 1.5% of sodium alginate i.e. in the ratio of 6:1. After mixing with sodium alginate slurry beads of 4.5 mm are made and then allowed to cure in solution at 4⁰ C for 24 hours.

Outcome

- 1) Optimum dosage of biosorbent was 3g of adsorbent/ 100ml of 50 ppm copper solution.
- 2) Bead optimization achieved at 6:1(9% soyhulls with 1.5% sodium alginate) was best adsorption capacity.
- 3) Optimum contact time was 45 minutes after which the beads can be filtered.

Conclusion

- 1) Soyhull mixed with sodium alginate slurry in proportion of 6:1 is optimum for absorbing copper from water.
- 2) For efficient removal of copper particles from water 3gm of soyhull balls should kept in water having copper pollutant. It can remove 50ppm from it.
- 3) Optimum removal of copper can be obtained if soyhull balls are kept in polluted water for 45 minutes. It shows 80% efficiency of copper removing.

Implementation

- 1) This can be used by industries which work on copper plating.
- 2) Industries where copper treatment is done on various materials.
- 3) Various refineries can use this for reducing contamination of water after refining procedure



Final Product