

# An Adsorbent for wastewater treatment and a method of preparation thereof

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**About the Technology:** The invention introduces a sustainable adsorbent made from Citrus limetta peels and green tea waste with chitosan, offering high heavy-metal removal efficiency for eco-friendly wastewater treatment.

**Technology ID:** PM-TT-IM-2025-Jul-9

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**Institute:** ICMR-Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), Patna

**Technology Domain:** Environmental Remediation

## Need and utility of the Technology from Public health perspective:

This technology is cost-effective and environmentally friendly. The adsorbent synthesized in this technology is capable to removal heavy metals contamination from contaminated water and minimize the risk of heavy metal toxicity in public health.

## Technology Readiness level (TRL):

The Absorbent have been validated in both in-house and third-party laboratory set up for removal of multivalent heavy metals in stimulated waste water samples.



## Validation Status and Study Outcome:

- Lab-scale tests confirmed high adsorption efficiency of the chitosan-functionalized adsorbent (from Citrus limetta peels and green tea waste) for heavy metals like Cr, As, Cd, and Pb in simulated wastewater

## Market Potential:

### Market Potential

- Heavy-metal treatment market: **USD 2.04B → 3.76B by 2035 (CAGR ~6.3%)**
- Adsorbents dominate with **~42% share**

### Unmet Need

- Sustainable solution** for industrial heavy-metal removal

**Publication:** NA

**IP Filing:** Indian Patent Application No. 202431075307