Blue-Green Algae Can Remove Lead from Water

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Why in News?

Recently, scientists at the IIT Guwahati have developed a biological material using cyanobacteria (blue-green algae) that can remove lead from contaminated water.

- **Cyanobacteria (blue-green algae) –** Commonly found in ponds, lakes, reservoirs, paddy fields, and slow-moving fresh water bodies.
- **Material – *Exopolysaccharides (EPS),*** a sticky, sugar-rich substance secreted by algae.
- **EPS Mechanism –** Blue-green algae grow in ponds or paddy fields; their cells secrete sticky, sugar-rich EPS molecules that naturally bind lead.
- Algae further adjust their composition to trap and hold lead particles.
- **Efficiency –** EPS can remove **66.2% of lead**, one of the most toxic heavy metals present in water.
- **Additional Benefits –** Cyanobacteria form cyanolichens with fungi, enrich soil, fix nitrogen as a natural biofertiliser, and boost agricultural productivity.
- **Conventional Methods –** Traditional methods like chemical precipitation, membrane filtration, and ion exchange are costly, energy-intensive, and polluting.
- Biological approaches offer greener, renewable, and eco-friendly alternatives.

Reference

The Hindu | Blue-green algae can remove lead from water

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